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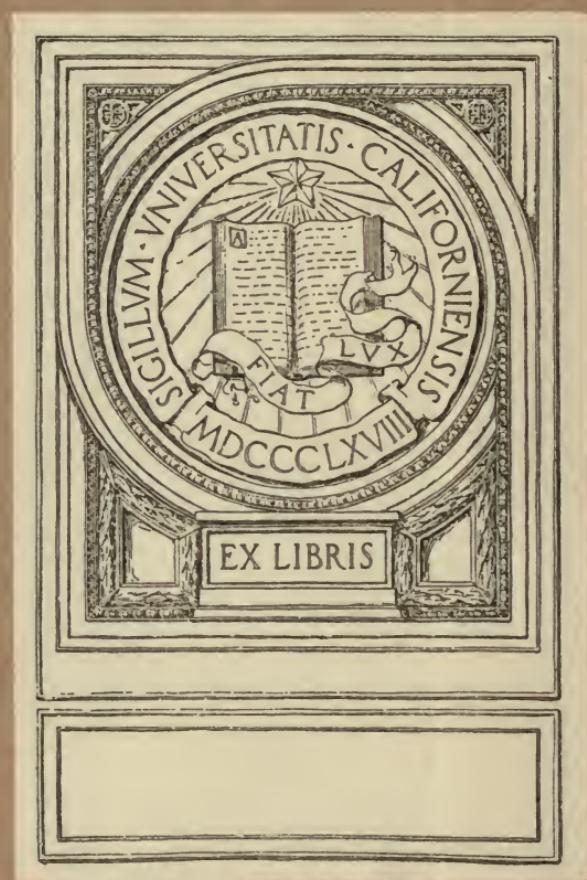
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Aug 5 1925

An Account
of the Operations
of the
American Navy In France
during the
War With Germany



Vice Admiral Henry B. Wilson, United States Navy
Commander, United States Naval Forces In France



On account of the operations of
American naval forces in
the Mediterranean

FOREWORD

This brief narrative of the American Naval effort in France is dedicated to the officers and men—Regular, Reserve and Coast Guard—who served under my command in France and in French waters, from November 1, 1917, until my detachment on January 30, 1919.

It is to their efficiency, to their untiring zeal and keenness for work, and above all to their loyalty to their commander, to their duty, and to our service, that our success was due; and it was their proudest boast that no soldier or passenger, embarked on a troop ship, escorted by American vessels, during the above period, was lost through the effort of the enemy.

The remembrance of our service together in time of war will be for all time the most cherished memory of over forty years of service, and I shall always have a heartfelt interest in the success of each and every one of them.



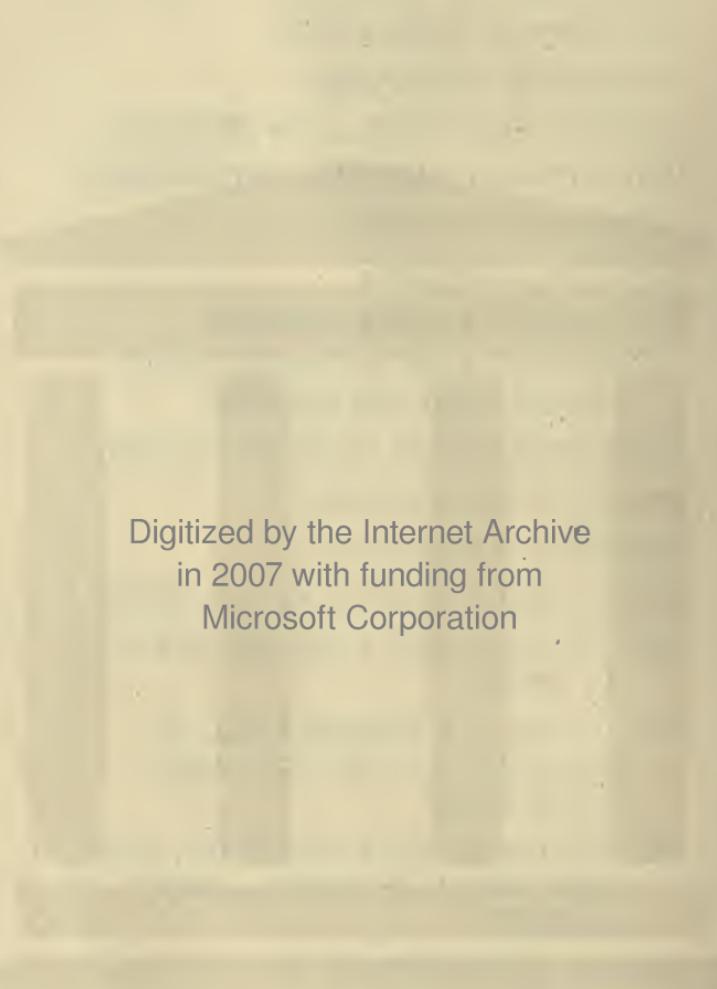
Admiral, U. S. Navy.

U. S. S. Pennsylvania,
July 1, 1919.

Mr. Mull
G. Mull

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Chapter I

THE COAST OF FRANCE

Seen on a chart of the North Atlantic Ocean, that part of France lying west of a line drawn from Havre on the north, to Bordeaux on the south—from the mouth of the river Seine to the mouth of the river Gironde—juts forth into the sea like the head and forearm of some gigantic beast, some incredibly huge bear. Audierne Bay, Douarnenez Bay, and the harbor of Brest form the mouth of this bear. It was into this maw, and into certain subsidiary orifices north and south, that troops and stores from America were poured for France.

The coast of France borders on three distinct bodies of water: the north coast borders on the English Channel; the west coast on the Bay of Biscay which is really a part of the Atlantic Ocean.

ADDENDUM

After Captain R. H. Jackson, U. S. N., insert "Rear Admiral A. S. Halstead, U. S. N., District Commander Brest."

When, later in the war, the large increase in shipping and in the number of vessels available for escort duty, made it advisable to use the Mediterranean ports, the routing of

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Lieutenant Churchhill Humphrey, U.S.N.R.F.	Barracks and in charge of enlisted personnel
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Chapter I

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The coast of France borders on three distinct bodies of water: the north coast borders on the English Channel; the west coast on the Bay of Biscay which is really a part of the Atlantic Ocean; and the south coast on the Mediterranean Sea.

We maintained port offices in the principal ports on the English Channel and Bay of Biscay, as well as a port office at Marseilles, the principal port of the Mediterranean.

The ports of the Mediterranean were very little used by us during the early days of the war. This was because of the fact that in the early part of the war our ships could be discharged in the other ports; and, as the intensity of the enemy's submarine effort in the Mediterranean increased, ships had to travel a longer distance through submarine-infested waters to reach Mediterranean ports than they did to reach northern ports. Hence, as the inadequate number of escorting vessels made it impossible to furnish sufficient protection, it became undesirable to use Mediterranean ports for our purpose.

When, later in the war, the large increase in shipping and in the number of vessels available for escort duty, made it advisable to use the Mediterranean ports, the routing of

ships for these ports was in the hands of the American admiral stationed at Gibraltar. We were not directly concerned with them.

To obtain access to the ports of the English Channel did not require as long a passage through the submarine zone as was required to obtain access to the ports of the Mediterranean, yet, it did necessitate a longer passage through submarine-infested waters than was necessitated to reach ports of the Bay of Biscay. The English Channel, moreover, was probably the most dangerous water to be traversed in approaching France, by reason of the great effort made there by enemy submarines. Then, too, the best ports on the northern coast of France were being utilized to their capacity by the British.

As a result of the above factors, in the beginning of the war, ports on the northern coast of France were not much used for the discharge of our ships. At a later date, when it became necessary to avail ourselves of every possible port, we began to use them—principally for the discharge of smaller ships carrying coal and other supplies from Great Britain.

Troops assigned to reach France via the north coast ports, that is to say, the English Channel ports, went first to England, and were then trans-shipped in fast small vessels from English ports to the Channel ports in France.

With the routing of these ships we had nothing to do. The smaller ships passing along the west coast of France, and thence to the Channel ports, for discharge, or coming from England and along the coast of France, were placed in the coastal convoys, and the safety of these convoys until they arrived at Brest on the southbound passage or after leaving Brest on the northbound passage was in the hands of the French.

Throughout the war the great majority of ships which came direct to France, whether carrying troops or cargo, went to ports in the Bay of Biscay. These western ports were the nearest to America, and although the course to them led through dangerous waters, they were not perhaps as dangerous as the waters of the English Channel, permitted of greater

variation of routing in approaching them, and were not being used to any great extent by any other nation.

The principal ports on the west coast of France are, Brest, St. Nazaire, La Pallice, and Bordeaux.

Brest is the northernmost of these ports. About one hundred and forty miles south of Brest lies St. Nazaire. Only about one hundred and ten miles to one hundred and twenty of these one hundred and forty miles were dangerous, depending upon the route taken—the remaining twenty to thirty miles lay through the inland waters of Quiberon Bay and behind protecting shoals.

Bordeaux, the principal city on the west coast of France, lies about sixty miles up the Gironde River. The mouth of the Gironde is about two hundred and forty miles south of Brest.

La Pallice is thirty to forty miles north of the entrance to the Gironde.

Brest lies in about the same latitude as St. Johns, Newfoundland; while Bordeaux's latitude is about one hundred and eighty miles north of Boston's. Nevertheless, the influence of the Gulf Stream is such that although Brest and Bordeaux never have as hot summers as New York and Boston have, yet, their winters are much milder. In Brest, for example, there is an abundance of rain, yet it very seldom snows. When there is snow it rarely remains on the ground for more than twenty-four hours.

Brest is some one-hundred and fifty miles westward of the Gironde River—that much nearer America—and is about eighty miles westward of Quiberon Bay, the latter marking the entrance to safety for ships approaching St. Nazaire. From our viewpoint, as the waters of France were always dangerous for ships passing through, the use of Brest by us made the above distances clear gain.

It is to be observed that in selecting ports for the disembarkation of troops the interest of the Army and the Navy were somewhat different. The Navy's mission was to get troops and stores safely to France, whereas, the Army had to give full consideration to the great importance of distances

and means of transportation from the point of discharge to the bases whence great masses of soldiers were to be supplied.

When the preliminary survey of the coast was made, therefore, the Army officials designated Bordeaux and St. Nazaire as the great ports of disembarkation. In fact, it was at first contemplated by the Army that some two-thirds of all the American troops would be landed at Bordeaux. But besides the disadvantage that Bordeaux possessed of lying one hundred and fifty miles to the eastward of Brest, it lay some sixty miles up the River Gironde—the bar at the river's mouth made the water so shallow that ships of more than twenty five feet draft could not safely be sent there. An additional disadvantage is that the current of the river is so strong as to make it difficult for large ships to anchor or to swing with the tide.

St. Nazaire is purely an artificial harbor, and only ships whose maximum draft did not exceed thirty feet could be sent there. In the harbor itself there is very little room—basins have been built into which the ships are locked. The greatest number of our ships ever accommodated in these basins at any one time was about twenty-nine.

Above St. Nazaire lies Nantes. Here ships with a draft of less than twenty-four feet can be sent.

La Pallice, already mentioned, is a port of very limited capacity. It was seldom used as a point of discharge for troops except that a few casuals were disembarked there. Its primary use was for the discharge of storeships carrying certain classes of supplies.

In the early part of our participation in the war, nearly all ships were sent to St. Nazaire. But when the time came that a convoy of ships sailed for France consisting of four ex-German vessels, the MOUNT VERNON, AGAMEMNON, AMERICA and VON STEUBEN, the great size and draft of these vessels made it impossible that they should be handled at St. Nazaire or Bordeaux. They must, therefore, come to Brest.

Brest is a magnificent harbor, the only natural harbor of importance on the west coast of France. At all stages of the

tide it is available for ships of any draft or size. It has several entrances, and all entrances can be mined against the enemy, and any one entrance can be used in case any of the others have been mined by the enemy. The inside harbor can accommodate almost any number of ships. Also, there is less current there than there is at either Bordeaux or St. Nazaire.

Notwithstanding the above facts, so little consideration had been given to the prospects of using Brest as a port for our shipping that upon arrival there of the four large transports referred to it was necessary to land the troops by means of some fishing boats sent by the Navy to France as minesweepers.

This discharge of this convoy made it evident that it was necessary to consider Brest as one of the principal ports for disembarkation. We had for some time been urging the necessity of this being done on account of the fact that it had been found impossible to divide convoys. Certain ships of some convoys could be received nowhere else than in Brest because of their size—when ships of this sort constituted part of the convoy it was necessary to bring the whole convoy into Brest in order to avoid division.

The necessity of the use of Brest once demonstrated, the Army immediately turned to with a will and undertook the development of Brest as a port of disembarkation.

The money spent on the development of Brest's resources was very little when compared to that expended on St. Nazaire and Bordeaux. But what was lacking in materiel was made up in the spirit and the ability of the personnel.

Brigadier-General McClure was in command of the Army Base at Brest until ordered to a command at the front, when he was relieved by Major-General Harries. General Harries had had a very extensive experience of a constructive and administrative nature in civil life which fitted him splendidly for the work of developing the port. In addition, he was a gentleman of great tact which endeared him to the French and made our own work with the Army in Brest not only very pleasant but very successful.

Major Green, the Army officer in charge of the discharge

of ships during the development of Brest had been assistant to the president of one of our principal railroads and was a man of exceptional organizing and administrative ability. The second officer in charge of this work, Major O'Neill, had formerly been the leading stevedore of the White Star Line in Boston. By reason of his training, personality and activity, his ability to discharge troops and cargo could not have been surpassed.

It is worth noting that, toward the end of the war, the Service of Supply of the Army held a competition between the various ports of France in regard to loading and unloading ships. Each port was given a previous performance as a standard, and the competition lasted a month. It was popularly known as "The Race to Berlin". When the month was up it was found that Brest led all the other ports. On account of limited wharfage it was necessary to discharge many ships while lying in the outer harbor, and to do this tugs and lighters were needed. Besides the tugs necessary to assist in discharge of ships, we needed a considerable number for the purpose of moving our destroyers about in the inner harbor. This procedure was desirable in order that the destroyers could keep their fires out while in port and could devote all their time to the upkeep of their machinery. Such tugs, were, also, in demand in order to move fuel-barges and water-barges about the harbor and to assist in docking certain of the transports.

Upon our arrival at Brest we found very little of this sort available—at first we had to depend upon the limited facilities of the French. Two large sea-going tugs, the CONCORD and the BARNEGAT, were sent to us from the United States. A third large sea-going tug, the GYPSUM QUEEN, was maintained by us in the Gironde River. We purchased three self-propelling barges, carrying one hundred and sixty tons of coal each. From the French we chartered for a short time a small tug, the ILE DE OUESSANT.

Toward the end of the war a small paddle-wheel steamer, the ST. TUDNO, and a small tug, the CRICCIETH, were bought from England to help in the work of transporting troops.

Chapter II

METHOD OF OPERATION

Our method of operation, although in accord with military practice and with the Allies' agreement, could only be rendered effective and efficient by complete cooperation between the forces concerned. It is a pleasure to bear witness to the hearty cooperation existing from the very beginning of our participation in the war until active operations ceased with the signing of the armistice. This cooperation was not one on the surface only, but it was a real unitedness of effort, both in respect to material and spirit. The relations between the forces of the respective nations, extending from the commanders throughout the entire commissioned and enlisted personnel, were at all time of the most friendly nature. There were literally no disagreeable incidents, no friction. On the contrary, there was always a spirit of give and take, resulting in a mutual relation that approached the ideal.

This happy condition of affairs was largely due to the character and ability of the senior officers of the French naval service, with whom we were brought in contact. Their influence was reflected in all ranks of the French Navy.

In accordance with agreement, the Senior Allied Naval Officer Present commanded all forces operating in any particular country or section of a country. Thus, logically, all American forces on the west coast of France were under the command of the Senior French Naval Officer. For the greater part of our service this officer was Vice Admiral Moreau, Prefet Maritime of the Second Arrondissement, with headquarters at Brest.

Directly under Vice Admiral Moreau was Vice Admiral Schwerer, Commandant Supérieur of the Divisions of Brittany. Under the Prefet Maritime, Vice Admiral Schwerer was for all practical purposes in command of the greater portion of the French cruising forces on duty in the Bay of Biscay. The chief part of these French forces were based on

Brest. In addition, there were mine-sweepers, small torpedo-boats, and gunboats, known as the "Defense Mobile", and based on the two other arrondissements of the west coast of France. Their headquarters were at Lorient and Rochefort.

In the beginning of our operations, when there were only a few of our vessels in French waters, they were based on Brest, which from the first was the headquarters of the Commander, United States Naval Forces in France. But, with the expansion of our forces and the increase in escort duty performed by these vessels, it became necessary to transfer some of them to other sections of the coast.

The practicability of their transfer was to a large extent dependent upon the ability to obtain fuel-oil at some port other than Brest, and because at first fuel-oil could only be obtained at Brest, it was necessary that the first vessels transferred should be coal burners. The relative speed and importance of the convoys reaching the various ports introduced another factor for consideration—it was decided that the smaller and slower vessels, which, for other reasons, were of the least military value, were most suitable for serving the convoys entering the Gironde River. The decision was reached to transfer a number of yachts for basing in the District of Rochefort, some seventy miles north of the entrance to the Gironde River.

Accordingly, between January 31 and February 19, 1918, the converted yachts CORSAIR, NOMA, WAKIVA, MAY, NOKOMIS and APHRODITE, were sent to Rochefort to base. The reasons that these vessels were not sent simultaneously were, first, certain of them were undergoing repairs incident to their continuous service since their arrival in Europe, and, second, they could not immediately be spared.

A mine-sweeper division, under the command of Captain T. P. Magruder, U. S. Navy, proceeded to Lorient between December 13, 1917, and February 5, 1918. This division was made up of the converted yacht GUINEVERE, and the converted fishing-vessels MCNEAL, CAHILL, ANDERTON, BAUMAN, LEWES, COURTNEY, HUBBARD, JAMES, HINTON and DOUGLAS.

Captain Magruder became senior American naval officer in the District of Lorient—under him these vessels were assigned by the French a definite section of the approaches to St. Nazaire for the purpose of maintaining the section clear of mines. This was extremely important duty. Transports, as well as storeships, discharged at St. Nazaire, and the approaches to this port could easily be mined; hence constant sweeping was necessary to insure the safety of our ships. In addition to his other duties, Captain Magruder was given command of a naval district corresponding to the Third Arrondissement of the French—this ran from Penmarch to the southward of St. Nazaire. The initiative and ability in the administration of this district of Captain Magruder, popularly known as the "Duke of Morbihan", was of the greatest assistance in the carrying on of our work.

The mine-sweepers—converted fishing vessels—had been sent to France with the expectation of their fulfilling a double purpose: mine-sweeping and escorting slow convoys along the west coast of France. But almost immediately upon their arrival, it was found that they were not fit for the second part of the duty on account of their unseaworthiness. These vessels had made the trip from Boston to Brest without misadventure; but they had been fortunate in having had almost ideal weather conditions for most of the distance, for the sea in the Bay of Biscay and the English Channel in bad weather is of a sort to try even the stanchest of small vessels. One of the vessels, the REHOBOTH, foundered off the Island of Ushant shortly after her arrival, and, in fact, upon her first trip to sea.

On account of their relative unseaworthiness, therefore, these vessels were assigned exclusively to the work of mine-sweeping, rescue work, and salvage work within their district. Nevertheless, at times when our forces were taxed to their limit during the height of the submarine campaign, these vessels did render assistance in escorting ships from Brest to the southward; but weather conditions were always considered.

Captain N. A. McCully, U. S. Navy, reported in France, and was assigned to the duty as commander of the Rochefort

District. This corresponded to the Fourth Arrondissement, and extended from where the Lorient District ended to the coast of Spain. As in the case of Lorient, we were very fortunate in obtaining for this duty an officer who combined tact and ability to a high degree.

Captain H. H. Hough, U. S. Navy, arriving in France, was assigned to the command of the Brest District. This corresponded to the Second Arrondissement of France, ran from Cape Brehat southward to Penmarch Point, and was the district of our greatest activity.

Commander David Boyd, U. S. Navy, was assigned to command the Cherbourg District. This district corresponded to the First Arrondissement. It reached from Cape Antifer to the boundary of the Brest District. The growth of this district was really only beginning towards the end of the war, and its success was really due to the energy and ability of Captain Boyd. We could give little aid in the way of ships to him, and had to rely on his ability to stretch his slender resources to the utmost.

At various times, naval port officers were assigned to certain ports—to Brest, Havre, Cherbourg, Rouen, St. Malo, Granville, St. Nazaire, Nantes, Quiberon Bay, Sables d'Olonne, Bordeaux, La Pallice, Rochefort, Royan, Verdon, Paulliac, and St. Jean de Luz.

The port officers were under the immediate command of the District Commanders, and were the naval representatives in the various ports. Their duty was to advise the Army officials as well as the masters of ships on all points where the advice of a naval officer conversant with the sea and with the coast of France might be useful; to keep the Commander, U. S. Naval Forces in France informed of the approximate dates when ships would be ready for sea—this so that they could be fitted into convoys; to assist in the quick turn-around of vessels; to care for the administration of discipline aboard naval ships; and, in general, to assist in every way in the efficient handling of ships that entered their respective ports. With the sailing of convoys at regular intervals a gain of a day in discharging a ship might easily avoid a loss of eight days in her departure for the United States.

Soon after our arrival on the coast, it was decided by the Commander, U. S. Naval Forces in France, and by the French naval authorities that the former should assume the responsibility for the escorting and the routing of ships that carried American troops to and from the coast of France. This decision did not apply to the French liners which carried a comparatively small number of troops to and from Bordeaux.

At first, the agreed-upon procedure was somewhat modified by the fact that the American destroyers basing on Queenstown escorted nearly all troopship groups to the pilot waters of the French coast. Here they were taken over by the American forces basing on Brest, which then assumed the responsibility for guiding them to port.

All special westbound convoys of troopships and fast American storeships were escorted and routed by the Commander, U. S. Naval Forces in France.

The agreement between the French and the British gave to the French the responsibility for the safe escorting of storeships to the west coast of France—this procedure was not modified by our entry into the war. Upon our arrival, the orders for these convoys were issued by the French, and we assigned vessels to cooperate with the French and to operate under their command.

As time passed, the number of the storeships and the number of convoys containing them were vastly increased; so, also, was the number of our vessels available for escort duty increased. Although, logically, the responsibility for escorting these convoys still remained with the French, yet, it is a testimonial to their desire to cooperate that they gradually transferred to us the practical control over the convoys.

Copies of all operation orders or convoy orders issued by the Commander, U. S. Naval Forces in France were sent to the French authorities sufficiently long before the orders went into effect to allow the French to offer such criticisms or suggestions as they might have. In the same way, copies of orders affecting American shipping that were issued by the French were furnished the Commander, U. S. Naval Forces in France. At all times the French were glad to receive and to consider any suggestion from us.

Chapter III

PHASES OF ACTIVITIES

American Naval activity on the Atlantic Coast of France naturally divides itself into two parts. The first phase covers the period when the American forces were operating under the command of Rear Admiral W. B. Fletcher, from his arrival on July 4, 1917, to his detachment on October 20, 1917. The second phase comprehends the time when our forces were under the command of Rear Admiral (afterward Vice Admiral and now Admiral) Henry B. Wilson, U. S. Navy, from his arrival on November 1, 1917, until his detachment on January 30, 1919. During the brief interval between the detachment of Rear Admiral Fletcher and the assuming of command by Admiral Wilson, our forces were commanded by Captain T. P. Magruder.

Our operations might, also, well be classified as belonging to the period when the American forces consisted of auxiliary craft such as yachts and mine-sweepers, and the period when the forces were augmented by destroyers.

The beginning of the latter period was almost coincident with the assumption of command by Admiral Wilson—he was insistent that the American forces on the coast of France were utterly inadequate to perform the task assigned to them. It was presumably in consequence of his demand that the forces were increased by the arrival of destroyers. However, these did not reach France in one group. The first to come were five coal-burning destroyers that joined shortly before the arrival of Admiral Wilson. An account of the arrival of these destroyers will be given in detail elsewhere.

At the time of our entry into the war, the enemy submarine campaign was becoming an extremely serious menace to the Allied cause—as a consequence, there was great need for anti-submarine craft; particularly for employment in the waters contiguous to the British Isles where the maximum effort was being directed.

The first unit of American destroyers sailed for Queenstown, Ireland, in April, 1917, and this force was gradually increased until about thirty destroyers were based on Queenstown.

The submarines were not idle in the Bay of Biscay, and the necessity the French were under of keeping the greater part of their naval forces in the Mediterranean left them decidedly weak in vessels suitable for assuming an offensive against the submarines and for protecting shipping off the west coast of France. Our Navy Department decided to send such American forces as were available to base on the west coast of France and to operate in French waters. All available destroyers having already been sent to Ireland, it was necessary to improvise craft for French duty—the only vessels available were various yachts taken over at the outbreak of hostilities and converted into armed auxiliaries.

These yachts differed materially from each other in size, seagoing qualities and speed. They varied from the CORSAIR, a large seagoing yacht capable of perhaps eighteen knots, to the CHISTOBAL, a small yacht which could make eight and one-half knots but which could not well keep the sea for off-shore work.

The CORSAIR, Lieutenant Commander T. A. Kittinger, U. S. Navy, sailed from the United States with a convoy on June 14, 1917, but was compelled to drop back. However, in company with the APHRODITE, another large yacht, Lieutenant Commander R. P. Craft, U. S. Navy, she joined the second group of the troop convoy and arrived at St. Nazaire on June 27, 1917. Thence she proceeded to Brest, arriving July 2, 1917.

A division of yachts of various sizes and speeds was organized under the command of Rear Admiral W. B. Fletcher, U. S. Navy, who had been designated Commander of the U. S. Naval Forces on the French Coast. This division included the NOMA, Lieutenant Commander L. R. Leahy, U. S. Navy, the SULTANA, Lieutenant Commander E. G. Allen, U. S. Navy, the VEDETTE, Lieutenant Commander C. L. Hand, U. S. Navy, the HARVARD, Lieutenant Commander A. G. Stirling, U. S. Navy, the CHRISTOBAL, Lieutenant

Commander H. B. Riebe, U. S. Navy, and the KANAWHA (afterwards named PIQUA) Lieutenant Commander H. D. Cooke, U. S. Navy. It sailed from the United States on June 9, 1917, and arrived July 4, 1917.

Commander F. N. Freeman, U. S. Navy was given the command of an additional division, consisting chiefly of smaller vessels—the ALCEDO, Lieutenant Commander W. T. Conn, U. S. Navy, REMLIK, Lieutenant Commander I. C. Johnson, U. S. Navy, WANDERER, Lieutenant Commander P. L. Wilson, U. S. Navy, GUINEVERE, Lieutenant Commander Guy Davis, U. S. Navy, CORONA, Lieutenant Commander L. M. Stevens, U. S. Navy, CAROLA, Lieutenant Commander H. R. Kelley, U. S. Navy, and EMELINE, Lieutenant Commander R. C. Williams, U. S. Navy. These vessels sailed from New York between July 28, 1917, and August 5, 1917, assembled at St. Johns, Newfoundland, and thence proceeded to Ponta Delgada in the Azores. The division arrived at Brest August 29th and 30th, 1917.

By this time the necessity for mine-sweepers had become apparent. The yacht WAKIVA, Lieutenant Commander T. R. Kurtz, U. S. Navy, the steam-fishing vessels fitted for mine-sweeping, the ANDERTON, Boatswain H. Muller, U. S. Navy, CAHILL, Lieutenant A. E. Wills, U. S. Navy, REHOBOTH, McNEAL, Lieutenant C. N. Hinkamp, U. S. Navy, LEWES, JAMES, DOUGLAS, BAUMAN, COURTNEY, and HINTON, Lieutenant A. McGlasson, U. S. Navy, the supply-ship BATH, and five French submarine chasers were organized into a division. Under the command of Captain T. P. Magruder, this division sailed from Provincetown in August, 1917. Proceeding by way of Ponto Delgada, these forces reached Brest on September 22, 1917. During the following year they were reinforced by the seagoing yachts NOKOMIS, Commander D. Boyd, U. S. Navy, and MAY, Commander F. T. Evans, by the smaller yacht, RAMBLER, Lieutenant E. G. Rose, Coast Guard, and by the mine-sweeper, HUBBARD.

A full account of the acquisition, fitting out, manning and service of these yachts would form one of the most interesting

portions of the history of the war. The story can only be outlined here.

They were acquired by the Navy in various ways. Some were rented to the Government by patriotic owners at the purely nominal price of one dollar a year. Others were purchased. In a very few instances, their original owners refused to consent to their release, and it became necessary for the Government to requisition the vessels without their owners' consent.

The crews of the first yachts acquired included men from more different walks of life than probably were ever assembled on a man-of-war. The majority of them had had little seagoing experience or none at all. For the most part they were composed of Naval Militiamen, Reserves and Volunteers, many of whom were young college men, former regulars now returned to the service to seize this certain opportunity for active service abroad, and regulars. The captain of each vessel was a Lieutenant or a Lieutenant Commander of the Regular Navy. The other officers were former officers of the Navy, Naval Militiamen, ex-merchant officers, and in many instances, young men out of college or business who had had some experience in yachting but who often had absolutely no seagoing experience.

There can be no higher evidence of the patriotism of the young American and of his ability to adapt himself to new conditions than is afforded by the rapidity with which these vessels were shaken down and, within their capabilities, became efficient men-of-war.

In many ways, the service of these vessels on the coast of France may be considered the most difficult of any performed by vessels operating in the war. Nearly all of them were lightly built, intended for fair weather cruising only, and designed more for comfort than for seagoing qualities. Nevertheless, from the time of their arrival in France until the time of the armistice, they were worked without rest, and it was very seldom that any of them were not ready for any service required, whether of a routine or of an extraordinary nature.

The young men who enlisted for active service on board

these ships were willing to take almost any rating and to serve in any capacity. Successful business men and college undergraduates could be found passing coal, acting as mess attendants, and performing all the least desirable duties on board the ships they served on. Fortunately, the great expansion of the Navy made it possible to promote almost all of these men and to commission them as officers prior to the cessation of hostilities.

It was these yachts, together with the French vessels, that bore the burden on the west coast of France during the first months after our entry into the war.

During the early days of the war a division of destroyers was formed consisting of the REID, FLUSSER, PRESTON, LAMSON, and SMITH, together with the tender PANTHER. This division based on the Azores and consisted of vessels of the oldest division of comparatively modern destroyers. These vessels had been operating against isolated submarines working in southern waters. Not much success had been won, and it was decided to utilize them off the coast of France, where they arrived October 20, 1917.

The MONOGHAN, Lieutenant Commander J. F. Cox, U. S. Navy, and the ROE, Lieutenant Commander G. C. Barnes, U. S. Navy, escorted the U. S. S. SAN DIEGO and two transports from America to the coast of France. They reached Quiberon Bay on November 20, 1917, and thence proceeded to Brest. It is interesting to note that they came with nothing but the most general charts of the French coast, so that when they were told to use the Raz de Sein passage to Brest, they were unable to find it on their charts—as a matter of fact, they first put into a bay south of Brest in their endeavor to discover the entrance to the harbor. Nevertheless, as was always the way with our destroyers, they duly arrived ready for duty.

Each day made more and more evident the necessity for increasing the American Naval Forces in French waters. While no definite policy was announced, yet it was understood that such increase would be brought about by the arrival from time to time of destroyers from Queenstown. The

rapidity of this increase was, of course, dependent ultimately upon the arrival of new destroyers from America.

The next vessel to join, therefore, was the WARRINGTON, Lieutenant Commander W. W. Kenyon, U. S. Navy. She reached Brest from Queenstown on December 5, 1917. Also there came the old small destroyers WHIPPLE, Lieutenant Commander H. J. Abbott, U. S. Navy, TRUXTON, Lieutenant Commander J. G. Ware, U. S. Navy, STEWART, Lieutenant Commander H. S. Haislip, U. S. Navy, WORDEN, Lieutenant Commander J. M. B. Smith, U. S. Navy.

The ISABEL, Lieutenant Commander H. E. Shoemaker, U. S. Navy, a converted oil-burning, turbine-driven yacht of high speed, arrived on February 20, 1918, convoying the destroyer McDONOUGH. The McDONOUGH was one of the oldest destroyers of our Navy, built long before the war—with very small steaming radius. Three days out from Brest she had to be taken in tow by the ISABEL. The ISABEL, however, could make only three knots speed towing, and found she would not have enough fuel to make port unaided. Ships were, therefore, sent out from Brest and the McDONOUGH was towed to port by them, the ISABEL coming in under her own power.

During the first period of the ISABEL'S employment in France she was classed as a destroyer on account of her speed, but after being badly battered while on duty with a fast convoy in heavy weather, she was restricted to duty with convoys whose speed did not exceed thirteen knots.

The first of the modern destroyers to join us was the NICHOLSON, Lieutenant Commander J. C. Fremont, U. S. Navy, which had been operating out of Queenstown for some time. With the arrival of this vessel, a new period in the operations may be considered to have commenced. Prior to this time, the burden of escort duty had been carried by five of the larger yachts and eight of the oldest modern destroyers. To these were sometimes added three of the other yachts, but two of these—the NOMA and PIQUA—were of extremely light construction and the third—the HARVARD—could make only about eleven knots. It had

been necessary to work these vessels almost without rest and under the most disadvantageous conditions.

Until the arrival of the PANTHER, Commander A. M. Procter, U. S. Navy, it had been almost impossible to make effective and expeditious repairs. The personnel of the French navy yard had been so depleted by the demands of war, that work, although well done, was subject to great delay. The service of the yard had been given over, almost, to munition making—a large percentage of the workers employed were women.

Our destroyers were worked far beyond the point where, during peace times, it had been thought possible to work them and yet keep them in running condition. The officers charged with the material upkeep of these destroyers frequently told us that it would be impossible to keep them running at the rate they were then doing. Nevertheless, thanks to the unremitting and efficient efforts of their personnel, they were all in splendid operating condition even after eight months of this kind of work. When additional vessels reached us later in the war it became possible to ease up somewhat on the other vessels. But the end of the war, November, 1918, found them still doing the work they had started out to do. It is only just that credit be given these first five destroyer commanders on the coast of France: REID, Commander C. C. Slayton; SMITH, Commander J. F. Klein; PRESTON, Lieutenant Commander C. W. Magruder; FLUSSER, Lieutenant Commander R. G. Walling; LAMSON, Lieutenant Commander W. R. Purnell.

The record of the service of these vessels on the coast of France furnishes one of the finest tributes to the history of our Navy, to the soundness of their construction and to the ability of the personnel under trying conditions. Until about the first of June, 1918, when the original lot of destroyer captains was detached and ordered to the United States to fit out new vessels, no American destroyer sent out from France had ever missed contact with a convoy; no destroyer despatched with a mission had ever returned to port before the completion of her duty, and furthermore, during this period, after the torpedoing of the FINLAND, on October 28,

1917, no vessel en route from America to France or from France to America, when escorted by American vessels based on France, had ever been torpedoed or successfully attacked on the high seas.

The JARVIS, Lieutenant Commander R. C. Parker, and the DRAYTON, Lieutenant Commander G. N. Barker, two of the 740 ton oil-burning destroyers, joined our force on February 15, 1918. Then came the WADSWORTH, Lieutenant Commander C. E. Smith, (Commanding Officers of the NICHOLSON and WADSWORTH were exchanged in order that the division commander would be on the vessel of longest steaming radius) one of the Navy's best 1,000 ton destroyers —March 4, 1918. These three vessels had previously operated out of Queenstown.

On June 1, 1918, a message was received from the Force Commander stating that it was proposed to assign nine to twelve additional destroyers to the French coast as soon as we were ready to maintain them and were ready to take over the escort of all groups of troopships making the coast of France. We were asked how soon we would be prepared.

The facilities for fueling these vessels were in process of development, but were still rather meagre. Our only fuel-oil tanks were at Brest and were those we had found there upon our arrival, their capacity being about 6,800 tons. However, the Commander, U. S. Naval Forces in France had from the first urged that more destroyers be based on France, and that the duty of escorting troopships to and from the coast be undertaken in France. An analysis of the situation showed that by careful management and by anticipating the fuel requirements, we would take care of the additional destroyers. Accordingly, a reply was immediately made to the Force Commander that we were ready to maintain these vessels at once and were ready to take over the escorting of all troop convoys.

As a result of these communications, the following destroyers joined our force—the last three being delayed because they were being over-hauled in England: on June 8, 1918, the SIGOURNEY, Commander W. N. Vernou; WAIN-

WRIGHT, Commander R. M. Dawes; and FANNING, Lieutenant Commander F. Cogswell; on June 9, 1918, the TUCKER, Lieutenant Commander W. H. Lassing; WINSLOW, Lieutenant Commander F. W. Rockwell; and PORTER, Lieutenant Commander A. A. Corwin; on June 11, the O'BRIEN, Commander M. K. Metcalf; CUMMINGS, Lieutenant Commander O. Bartlett; BENHAM, Lieutenant Commander F. J. Fletcher; CUSHING, Commander W. D. Puleston; on June 12th, the BURROWS, Lieutenant Commander A. Stackel; on June 15th, the ERICSSON, Lieutenant Commander R. R. Stewart; on July 23, the McDougAL, Lieutenant Commander V. K. Coman.

The above-named vessels, and those previously mentioned, constituted the force that carried the burden of the operations in the Bay of Biscay during the greater period of our activities on that coast.

Our forces were later augmented by the accession of new destroyers: on June 12, 1918, the LITTLE, Captain J. K. Taussig, and the CONNER, Captain A. G. Howe; on September 20, the TAYLOR, Commander C. T. Hutchins; on October 3, the STRINGHAM, Commander N. E. Nichols; on October 15, the BELL, Lieutenant Commander D. L. Howard; on October 20, the MURRAY, Lieutenant Commander R. G. Walling, and on October 30, the FAIRFAX, Lieutenant Commander G. C. Barnes.

The latter group of destroyers was sent to France as a part of the vessels newly-constructed and destined for our forces in French waters. It was understood that the Navy Department had decided not to augment the force based on Queenstown, but that all additional destroyers would be sent to Brest and to Gibraltar. Additional destroyers had become needed at Gibraltar because the Army authorities had begun to route ships by way of the Mediterranean.

But, as is well known, the destroyer construction program was much delayed. A further delay in the despatch of completed destroyers to European waters took place on account of the commencement of enemy submarine activities on the coast of America.

Chapter IV

CONVOY DOCTRINE AND METHOD

In order that the officers directly responsible for the formation of convoys and their escorts might have well established principles to work by, and to reconcile differing requirements of various phases of their duty in regard to the assignment of vessels for escort duty, the commander of our forces in France established the doctrine for determining the relative protection to be given.

The doctrine covered four points. The first point was the necessity of bringing troops to France safely. This, the Commander considered of supreme importance—not only because troops were most necessary for the conduct of the war, but, also, because just as long as we could bring our troops in without loss, just so long would our morale both at home and among the troops of the American Expeditionary Force be maintained at a high level, and, as time went on, the morale of the enemy would be correspondingly lowered. The second point of the doctrine was the bringing of loaded storeships safely to the coast of France. The third point was the escorting of empty troopships to the westward. The fourth point was the escorting of empty storeships to the westward.

In routing storeships to and from the coast of Europe, the general policy was to start them at regular intervals, usually every four or eight days.

By this method, the escorts took out their westward-bound or southward-bound convoys at regular intervals, and escorted them clear of the submarine zone. They then joined the incoming storeship convoys and escorted them to port.

Information was sent by the Admiralty to all their District Commanders charged with escort duty and to ourselves. Notice was given as to the expected time of arrival of British convoys at various positions known as the destroyer

rendezvous, as to the position at which the escort would join, and as to the course before arriving at the rendezvous. For the different convoys different speeds had been established, so that by means of the information received, all convoys crossing each other's paths could be routed clear.

Convoys were open to all Allied and to neutral shipping, and as a result were not capable of greater speed. Usually, they ran from six to nine knots, their rate of progress being dependent upon the speed of the slower ships. The slower convoys were affected by weather conditions, etc.

Adequate protection being required and the number of escort vessels being limited, it was necessary to place vessels capable of making a considerable speed in convoys with slower vessels. The result was that the former vessels had to accommodate their speed to the latter. Although unavoidable, this procedure had material disadvantages. It made the convoys large and more unwieldy than they would otherwise have been—hence, it both delayed the turn-around of ships and exposed the convoys to more severe submarine attacks. The submarines had an increased relative speed in overhauling convoys; attained more easily a favorable position for attack, and carried out the attack itself with greater freedom.

As the number of ships available for carrying troops was much less than the number available for carrying stores, and as the necessity for avoidance of disaster to troops was of primary importance, our troopships were not only made up in separate convoys or groups, but effort was made to form the groups in such fashion that the speed of individual ships would have to be decreased as little as possible. When the organization of our troopship groups was under consideration it had been decided that no ships of less than twelve knots should be admitted to these groups. This decision was consistently adhered to. The normal speed of troopship groups ran about twelve, fourteen, sixteen, eighteen and twenty knots.

In order not to delay convoys unnecessarily, and so delay the landing of troops in France, it was frequently necessary to increase or decrease by two to four knots, the speed of

certain ships in these convoys. This was true to a certain extent of the westward-bound sailing, also, but every effort was made to avoid such action. As a matter of fact, we tried to establish the principle that the speed of a westward-bound ship should never be reduced more than two knots for the sake of its accompanying slower ships.

The effort to hold to the above principle much increased the work of those concerned in handling it. As elsewhere referred to, upon one occasion five separate convoys were routed westward from the coast of France in an effort to avoid the necessity of decreasing the speed of individual ships. On this particular occasion, three of these groups sailed from Brest at different times during the same day. This seems worthy of mention as an indication of the amount of effort exerted in order that ships might have every possible chance to escape submarine attack.

If we had determined that our westward sailings should be made at **regular** intervals, it would frequently have happened that ships would have just missed the convoy, and would have been held unnecessarily in port after their cargo had been discharged. Therefore, convoys were held open until the last possible minute, that is, they did not leave port until the last time consistent with their escort having time to join the east-bound convoy after leaving the west-bound, in order that every ship which was ready and could make sufficient speed might be included.

To carry out this plan, two things were necessary; first, information received well in advance as to the expected time of arrival of east-bound groups; second, close cooperation with the Army in order that as many ships as possible might continue to be made ready up to the last moment. This moment was that beyond which it was impossible to hold the escorting vessels and still to give them time to join the incoming convoy or groups.

On the other hand, it was necessary to safe-guard the advance information received as to the prospective time of sailing and of arrival of troopships. The orders of the Commander of our forces in France were very explicit on this

subject. Such information was always limited to as few persons as possible.

As affairs progressed, information as to the probable departure of troop convoys from America was given as long a time in advance as possible—during the latter part of the war we would get information as to tentative east-bound sailings for a month in advance. This information, although varied somewhat from time to time, was of great value and enabled us to plan our work to better advantage than before.

It was, of course, necessary to avoid any possible leak to the enemy in regard to the details of troopship movements, as well as in regard to the general policy followed.

The destroyer rendezvous for these groups were not based on the chart of the British Admiralty but were a separate and distinct system.

A certain meridian of longitude was established well to the westward of the place where any submarine activity could be expected on the part of the submarines of other than the cruiser type—the submarine-cruiser phase of activity seriously developed only during the latter part of the war. The meridian established was known as the standard meridian. All eastward-bound troop groups were directed to cross the standard meridian at a certain hour on a certain day and, after crossing the meridian, to maintain a pre-determined speed and to steer for a pre-determined point off or on the coast of France until met by the escort.

These rendezvous and these courses were capable of an infinite variation by the office determining them. But when once determined and given to the troop commander, they had to be closely adhered to.

A cruiser, known as the ocean escort, accompanied the group until it was met by the destroyer escort. If, due to weather conditions, there was any appreciable delay in crossing the standard meridian, the cruiser was directed to report the facts, informing the Force Commander in London and the Commander, U. S. Naval Forces in France as to the number of hours the group was late in crossing the standard meridian.

The transmittal of this information was an excellent pro-

cedure. Unfortunately, in a number of instances we received the information after our escort had sailed. Upon such an occasion the escort would remain at sea for a longer period than we had planned for her to remain, and this meant a reduction to a dangerous extent in the fuel supply. In fact, in some instances, the shortage of fuel forced some vessels of the escort to return to port. When this happened, we were hard put to it to replace them in time to be of service to the incoming convoy.

The method of handling the escort and the convoy may best be shown by taking a typical case.

Let us assume that a group of twelve troopships has arrived on the coast of France. Eight of these ships have been safely escorted to Brest and four to St. Nazaire. From information in our possession, an escort will be required to sail to join another group in two days, and still another in four days.

As soon as information is received as to the prospective arrival of these ships, full information in regard to the names of the ships and in regard to the troop-content and cargo-content of each ship would be telegraphed in code to the Flag representative with the Army Service of Supply at Tours. After decoding by the Flag representative, the message would then be given to the Army officer charged with making arrangements for the discharge of the troops and cargo. This officer would then go over the despatch and would decide to what ports the Army wished the various ships in the group to be sent.

It would be at once easy to determine that certain ships of a convoy, on account of their length and draft must go to Brest because they could only be handled there. Then the amount of shipping already at the various ports would be considered, as affecting the speed with which additional vessels could be handled. The ships would be divided between the ports available for the discharge of troops, between Brest, St. Nazaire and Bordeaux. No doubt, also, the Army would have to consider the matter of train service in the various ports.

The distribution of ships desired by the Army would be given to the Navy's representative in Tours and he would wire it to Naval Headquarters at Brest.

It should be noted that, in order to avoid as far as possible any leak of information, no data as to the time of the prospective arrival of ships would be contained in the message sent by the Navy to Tours. The information furnished would be sent well in advance, if possible, as much as a week before the ships were due to arrive. In addition to the employment of a code, the names of the ships would be further safeguarded by assigning each one of them an arbitrary name which meant nothing; for example, the name of one ship would be Wheat, of another, Alcohol.

Upon receipt of the information from Tours, as to where the Army desired ships to be sent, the proposed disposition would be carefully scrutinized in order to make sure that no ships had been assigned to ports not safe or advisable for them to enter on account of length or draft. Next would be considered the feasibility of dividing the convoy between two or more ports.

Decision in the last-named point depended upon the number of escort vessels available. One large group could be protected by a smaller number of destroyers than would be sufficient if the group were divided into two or three groups. With our inadequate number of available destroyers, this was a most important consideration. As a matter of fact, during the greater part of the war it was impossible to divide groups. While this condition was disadvantageous, yet, as soon as the matter was made clear to the Army they accepted the situation and did all they could to cooperate with us along the lines we found necessary in this respect.

Postponing, for the moment, consideration of our typical case; it may be borne in mind that Brest became the logical port of disembarkation for the majority of the troops notwithstanding the fact—as elsewhere mentioned—that plans to utilize Brest had not been made early in the war. This port developed tremendously and while it lacked certain natural advantages for disembarking troops, yet, the Army personnel

charged with this matter became so very expert that it is doubtful if any appreciable delays resulted from the port's shortage of facilities.

At one time, during the latter part of the war, a group of twelve troopships was due to arrive on the coast of France, and it happened that we could spare the escort to protect the group if it should be divided. But, by that time, the Army organization had so perfected the disembarkation arrangements at Brest, that the Army requested that all twelve of the ships should be brought there.

This was made possible by the splendid spirit that prevailed in the Army personnel at Brest. Whenever we told them we had informed Army Headquarters at Tours that we could divide a group of vessels, the Brest contingent of the Army would protest strenuously, and, goodnaturedly, insisting that they wanted more work to do. One big Irish stevedore was fond of saying: "There is no Army and Navy at Brest. It's all one gang!"

Resuming our consideration of the typical case: our Admiral at Brest would by this time have received information as to the time the group would cross the standard meridian, the course it would steer after crossing the standard meridian, the speed it would make thereafter, the number and names of the ships in the group.

About two days before the arrival of the group, the District Commander at Lorient would be informed by a special code, of which there were only two copies in existence, one in the office of the Commander, U. S. Naval Forces in France, and one in the office of the District Commander at Lorient, as to the ships consigned to St. Nazaire. The prospective time of arrival off Quiberon Bay would be given in order that the port officer at St. Nazaire might make the necessary arrangements with the Army for the discharge of troops and cargo. About the same time, the French Vice Admiral at Brest would be given proper information.

Of the eight ships which would come to Brest certain ones could always be discharged and made ready for the western passage more quickly than the others. Some would re-

quire coal, or coal and water for the return voyage, while others would not require such supplies. Some ships would carry much more cargo than others would. Of those carrying cargo, some could be discharged much more quickly than others could on account of the method of stowage. Some ships would require a large amount of ballast, some a smaller amount and some none at all. If ballasting were required it would be a rather slow operation.

Not long before the arrival of the group, an officer from our Operations office would go to the American District Commander at Brest who was responsible for the refueling and the berthing of ships. A conference would be held as to the probable requirements in the way of fuel and water for the incoming ships. It would be decided, from a purely naval viewpoint, which ships could be "turned-around" in two days and in four days, (as a longer interval than this seldom elapsed between sailings of convoys), which would be available before the next sailing of a convoy, and which could not be turned around until a date still later.

With this information, the officer from the Operations office would then go to the officer of the Army Service of Supply who was charged with the actual discharge of troops and cargo. The Army officer would be given the names of the ships in the group expected—he would already have received from his headquarters at Tours the list of troops and a manifest of the cargo on each ship. From experience, he would be familiar with the difficulties to be overcome in the course of discharging the ships.

After looking over the lists pertaining to the prospective arrivals, the Operations office officer would ask the Army officer what ships could be ready in two and what in four days. At the same time he would furnish the Service of Supply representative the Navy's estimate received from Naval Headquarters as to the time that would be required to prepare the ships for the return passage. Decision would then be made as to ships on which to concentrate efforts and as to where the ships would be berthed in order best to effect such concentration of effort.

When the officer from the Operations office would return to the Admiral, he would know which ships would be concentrated on and where they would be berthed, which ships could be expected to be ready in one day, in two days and in four days, and the probable time when the remaining ships would be ready to sail for the United States.

In regard to the sailing of ships, an extremely strong, but friendly rivalry existed between the Army and Navy. The Army would endeavor to get ships discharged and ready for the western voyage before the Navy would be prepared to handle them. On its side, the Navy would try to have escorts ready before the Army could give them ships. The rivalry had a most effective result in shortening the time required for the turn-around of ships.

Besides the persons mentioned, the only person in Brest who would know about the prospective arrival of the ships would be the American Commanding General. He would be informed through his aide by the Admiral.

Telephone conversations in regard to the arrival of groups would be avoided as far as possible. But it was necessary at times. So, in order to avoid all chance of anyone listening in, understandingly, a peculiar method of expression gradually developed between the Army and Navy officers concerned, a method which probably would have meant little to anyone else. A convoy being organized might be referred to as "Tea" or "Dinner", and the various ships, never mentioned by name, would be referred to as prospective guests. Each ship would be known by an expression which would make it easily recognizable by the officers familiar with it.

Assuming that one of the transports was the HARRISBURG, that at first it had been thought it would be impossible to get her underway in time to sail with the convoy, but that due to unexpected progress it had become evident that she would be ready—assuming these things—the telephone message we would receive from the Army officer in charge of her preparation would run somewhat as follows:

The Congressman from Pennsylvania who told the Admiral yesterday that it would be impos-

sible for him to go motoring tomorrow afternoon has finished his inspection sooner than he intended, and if the Admiral has room for him he would be very glad to go.

This information could hardly be understood by anyone not accustomed to dealing with the Army authorities in the port.

Transport Captains were not required to call on the Admiral upon their arrival in Brest. As a rule, they got very little rest on the way across, and it was realized that they should be given all the time possible for sleep and recreation while they were in port. However, most of them did come to the office where we were always glad to have them and to show them all the data and the charts we had in regard to the activities of the enemy submarines.

Naturally, the first question they would ask upon their arrival would be as to when they were to be ready to sail. Our invariable reply would be that there was no information available but that we would give them a full twenty-four hours' notice when to have steam, that they could do anything with their ships or engines or crews which would not interfere with their ships getting underway within twenty four hours after being notified. Of course, this information might be varied in the case of certain ships—such ships could be turned-around so rapidly that they could be sent out within a day after their arrival. In such instances, due information would be sent immediately upon their arrival.

Twenty-four hours before the departure of the convoy, we would send a sealed envelope to each transport by special messenger. A similiar envelope would be sent to each of the destroyers that was to form part of the escort. Each envelope would be marked: "TO BE OPENED ONLY BY THE COMMANDING OFFICER".

The data in this envelope would be made out on a printed form whose details would have been filled in by one of the two officers in the Operations office, would have been signed by the Chief of Staff, and would have been seen by no one else until it reached the commanding officer of the transport or

destroyer. The envelope would contain the following information: names of the ships that would sail; the name of the convoy's commander; the speed of the convoy; the hour and day of sailing; the name of the vessel on which the escort commander would be embarked; and the names of the destroyers forming the escort.

At the same time information would be sent to the American District Commander as to what ships were to be ready at the hour and day of sailing specified in the order. This information was furnished to the District Commander in order that he might get the ships clear of the docks or clear of the inner harbor in ample time.

An envelope containing routing instructions would then be prepared for the vessels of the convoy and for each vessel of the escort. (At the beginning of the war the routing instructions were designed merely to take the vessels clear of the submarine zone, but when the enemy undertook his submarine-cruiser campaign, the instructions were extended to cover the passage of the vessels to their home port in the United States). The routing instructions would give full information as to all convoys which might cross the path of the outgoing vessels or which they might meet; also, information as to the last known position of enemy submarines. This last data was at first given in tabular forms, but, later, small charts were prepared whereon we attempted to plot the successive positions of all submarines. It was hoped that these charts would enable commanding officers of ships to anticipate the probable future movements of the submarines concerned. We would give them, also, any navigational information we had, e. g., concerning wrecks, mined areas, icebergs, derelicts, and the like.

In each envelope intended for vessels of the escort, there would be placed a sealed envelope marked: "TO BE OPENED ONLY AFTER SAILING". This envelope would contain full instructions as to the incoming group or groups the escorting ships were to meet, the route for bringing them to the coast of France, and the procedure to be followed if a division of the convoy had been decided upon. This informa-

tion would be sent off on the very day of sailing in order that we might assign the routes after consideration of the latest submarine information available.

In order that there might be no possible doubt as to these instructions in the mind of the escort commander, he would be directed to report to the Flag Office on the morning or the evening before sailing, and would be shown a copy of the sealed instructions. Together with one of the Operations officers, he would then check the rendezvous and the route and would discuss the movements of the westward-bound convoy and the details of the eastward-bound passage. In this way, we would make sure that there was no ambiguity in his instructions to necessitate the sending of a radio message after the departure of the convoy from Brest.

When he had received his instructions on board his ship, the convoy commander, who usually would be the senior officer both of the convoy and the escort, would call a conference of troopship captains and escort-ship commanders. With them he would arrange the details of the formation of the convoy and the escort, the special signals to be used, and the procedure in the event of submarine attack.

While the Flag Office would prescribe the formations according to the established doctrine, yet, there was no hesitation in changing the formations if the convoy commander so recommended, his recommendation being based on the result of his experience with the individual ships while making the east-bound passage. Although detailed arrangements would be made at the conference between troopship and destroyer commanders, yet, they would not require much time to make, because they would be in accordance with the established doctrine and principles. But such details would be carefully attended to as it was the Admiral's orders that radio communication should be cut to a minimum after the convoy had once cleared port.

Shortly before the hour of departure, the destroyers would leave their moorings in the inner harbor. Three of them would precede the convoy, and the convoy, surrounded by the other destroyers, would proceed to the harbor entrance,

where cruising formation would be taken up and the course would be set. Usually, the hour of sailing would be set so as to get the group clear of the inner harbor before dark. At dark the course usually would be changed radically, in order to avoid any submarine which might have taken up its position ahead upon seeing the convoy leaving the harbor.

The convoy would zig-zag at all times except during times of darkness and of fog. Early daylight and early dusk being the periods most favorable for the attack of an enemy submarine, the course would be radically changed at such times.

The normal procedure would be to have the escort remain with the convoy for forty-eight hours. On the evening the escort was to leave the west-bound convoy, the escort commander would call by radio the ocean escort or the commander of the incoming group, and would ask him simply: "Are you on schedule?" The reply simply would be "Yes", or so many hours behind schedule. After dark the escort would leave the west-bound convoy. The convoy would then disperse into individual units or into groups of two or three, depending upon whether or not enemy submarines were at work in the Atlantic. The escort would shape course for the rendezvous assigned for its junction with the east-bound convoy. This junction usually would take place as soon after daylight as possible.

At daylight, the escort would form a single scouting line, the distance between individual destroyers depending upon the visibility—the clearer the weather the greater the distance between destroyers—and would steam along a course reverse to the one upon which the incoming group would be proceeding. As soon as a destroyer sighted a group, the word would be passed to the other destroyers, and all would form a screen about the group.

From that time on, the course and the responsibility for the convoy would rest with the Commander, U. S. Naval Forces in France, and the first act of the escort commander would be to inform the group commander as to the course to be steered. Nearly always this course would be a decided change from the one the convoy had been following. Full

information would then be given the group commander as to the routes to be followed into port, as to what port the ships were going to, and, if the group were eventually to be divided, as to the position where the division would be made.

Any further information, such as in regard to submarine activity, presence of mines, and the like, would be passed to the ships by visual signals.

Chapter V

THE CONVOY SYSTEM

The number of convoys which could be handled in European waters was absolutely dependent upon the number of escorting vessels available to protect them through the submarine-infested waters. Destroyers were the only satisfactory type of vessel for this work, and, until the very end of the war, the number of destroyers available was so inadequate that it was necessary to plan their employment for weeks ahead.

One destroyer in the course of a single month's work was actually at sea sixty-seven per cent of the time. She worked in all conditions of weather, good and bad, and steamed during this time more than seven thousand, seven hundred miles, an average of two hundred and fifty miles a day.

In the beginning of our activities, the policy was to sail groups of troop ships so that a group would reach the coast of France every ten days. These groups were handled by the destroyers based on Queenstown.

As the number of transports engaged in troop service increased, the regular convoys continued to be run at about ten day intervals as before, but in addition, small, high-speed groups, averaging from seventeen to twenty knots, were spaced between the regular groups. The duty of meeting these fast convoys fell to the forces in France.

Of course, the simplest and surest way of meeting these incoming groups would have been to despatch the necessary destroyers from France at a time well in advance of the time when the incoming group was expected to arrive. Thus, the destroyers would have been able to proceed more or less directly to the rendezvous and to meet the incoming vessels well off the coast.

But the limited number of destroyers available made the above procedure impossible. We could have brought all the ships into France, but we would have been absolutely unable to take them west again when discharged. It would not have

been merely a condition of great delay in effecting a turn-around of the vessels, but it would have been literally impossible to get them west again at all.

Consequently, the plan was adopted of utilizing escorting vessels both on the west-bound and the east-bound passage.

Going west, the escorting vessels took with them empty troopships and empty storeships. These they dropped when clear of the submarine zone, and had ample time to make contact with the incoming groups beyond the danger zone. But the phrase "ample time" must be taken with reservation. Every effort was made to clear ships as soon as possible after they were discharged, and escorts were held in port as long as possible in order to accomplish two things; first, to take as many ships as possible westward; second, to have time to meet the incoming groups while they were still clear of the danger zone.

This was the crux of the entire problem. To its solution everyone concerned devoted his maximum effort.

It was sometimes necessary to take chances. At times, escort vessels, with orders to rendezvous at some part of the zone and to meet incoming groups, sailed with west-bound ships from three different ports, on different routes and at different speeds. The time allowed for contact with the incoming groups was cut down to the minimum commensurate with a reasonable amount of safety. When it is remembered that bad weather was apt to occur unexpectedly and might slow down the destroyers, or that they might be held in port by fog, it may be understood that many anxious moments were spent by those charged with this work. The amount and nature of the submarine activities off the coast was the governing factor in deciding how far we should escort convoys.

Most of the destroyers sailing from Queenstown to meet troop groups frequently were able to go to their rendezvous without the necessity of escorting convoys en route. We learned that the policy governing their time for sailing on this duty was for them to start soon enough so that, proceeding at a ten knot speed, they could arrive at the rendezvous in ample time. This was an excellent method, but it was only possible for us to adopt on the rarest occasions. Although

we were required to take great chances, yet, we were able to accomplish more than if we had followed the Queenstown policy, and we were fortunate enough to suffer very slightly.

The group escort work grew rapidly; for example during the month of January, 1918, three troop convoys containing altogether seven troopships, made the coast of France; while in July, 1918, eight troop groups containing fifty-two troopships arrived on the coast.

There were, on one day, formed and escorted from three different ports on the coast of France, five outward-bound convoys. These convoys were of different speeds, and each one had to be routed clear of east-bound, north-bound, and south-bound convoys and of submarines. Furthermore, they had to be routed so that their escorts could take them clear and yet have time to join the incoming groups and convoys before they arrived in the danger zone.

SHIP MOVEMENTS

In addition, many cargo ships were brought to France by American escorts from Queenstown and by British and French vessels which are not included in this and the following tables. Also, no consideration is given to troopships which first touched at England and whose troops were sent from England to France across the Channel. In other words, only convoys are listed which were handled in their entirety by American naval vessels based on France.

EXPLANATION OF TABLES:

- O.V. Convoys sailing from Verdon (Gironde River). Either store or troopship convoys. Ships in ballast for United States and South America.
- O.R. Similar convoys from Brest.
- O.P. Similar convoys from Quiberon Bay (St. Nazaire).
- H.N. Loaded storeships convoys from New York for France.
- H.B. Loaded storeship convoys from New York for France (Bay of Biscay ports).
- Grp. Groups—troopship convoys from United States for the coast of France.

† Troop groups—Escort furnished by Forces in France.

* Troop groups—Escort furnished by Queenstown Forces.

The American Navy in France

SHIP MOVEMENTS

January, 1918

Date of arrival	Date of departure	Convoy	No. of ships	Port of arrival	No. of troops
	Jan. 1	O. V. 1	1		
	Jan. 5	O. R. 1	2		
Jan. 6		H. N. 33	8	Brest	
Jan. 10		Group 15*	2	Brest	7400
	Jan. 10	O. P. 1	9		
Jan. 13 & 14		H. N. 35	2	St. Nazaire	
	Jan. 15	O. V. 2	4		
Jan. 17		Group 16*	2	Brest & St. Nazaire	6950
	Jan. 17	O. R. 2	3		
Jan. 20		H. N. 37	2	Brest	
	Jan. 22	O. R. 3	4		
Jan. 24		Group 17*	3	Brest	10930
	Jan. 24	O. V. 3	4		
	Jan. 26	O. R. 4	1		
	Jan. 29	H. N. 39	3	Quiberon	
	Jan. 29	O. P. 2	5		
	Jan. 31	O. R. 5	2		
			57		
					25280

February, 1918

Date of arrival	Date of departure	Convoy	No. of ships	Port of arrival	No. of troops
	Feb. 2	O. V. 4	5		
Feb. 3		H. N. 41	4	Brest	
Feb. 5		Group 18*	4	Brest & St. Nazaire	6833
	Feb. 7	O. P. 3	2		
	Feb. 10	O. V. 5	1		
	Feb. 10	O. P. 4			
Feb. 12		H. N. 43	4	Brest	
	Feb. 12	O. R. 6	2		
Feb. 15		Group 19*	3		6700
	Feb. 16	O. R. 7	1		
	Feb. 17	O. P. 5	1		
	Feb. 18	O. V. 6	5		
	Feb. 19	O. R. 9	4		
Feb. 19		H. N. 45	2	Brest	
	Feb. 19	O. P. 6	1		
	Feb. 24	O. P. 7	1		
Feb. 24		Group 20*a	5		13950
	Feb. 26	O. V. 7	5		
Feb. 27		H. N. 47	8	Quiberon	
			62		
					17483

(a) Also 2 Destroyers from Brest.

SHIP MOVEMENTS (Continued)

March, 1918

Date of arrival	Date of departure	Convoy	No. of ships	Port of arrival	No. of troops
Mar. 4	Mar. 1	O. R. 9	2	Brest & St. Nazaire Brest	23255
	Mar. 1	O. R. 10	2		
	Mar. 4	O. P. 8	4		
		Group 21*a	8		
		H. N. 49	10		
	Mar. 7	O. V. 8	6		
		Group 22*b	3		
	Mar. 10	O. P. 9	4		
	Mar. 10	O. R. 11	2		
	Mar. 12	O. R. 12	2		
Mar. 15	Mar. 12	O. R. 13	1	Brest	8200
		H. N. 51	6		
		O. V. 9	6		
	Mar. 16	O. R. 14	2		
	Mar. 16	O. R. 15	1		
	Mar. 17	O. R. 16	1		
		Special			
		Group †	1		
		Group 23*c	4		
	Mar. 21	O. P. 10	4		
Mar. 20	Mar. 23	O. R. 17	1	St. Nazaire, Bordeaux	2779
	Mar. 23	O. V. 10	7		
		H. N. 53	12		
		Group 24*d	5		
	Mar. 28	O. R. 18	1		
	Mar. 28	O. P. 11	3		
	Mar. 30	O. P. 12	2		
		H. N. 55	11		
	Mar. 31	O. V. 11	5		
			106		53043

(a) Also 4 Destroyers from Brest.

(b) Also 2 Destroyers from Brest.

(c) Also 1 Destroyer from Brest.

(d) Also 5 Destroyers from Brest.

April, 1918

Date of arrival	Date of departure	Convoy	No. of ships	Port of arrival	No. of troops
Apr. 4-5	Apr. 2	O. V. 1 (Special)	5	Bordeaux & St. Nazaire	5786
	Apr. 4	O. R. 19	3		
		Group 25*a	4		
Apr. 7		Special*	3	Brest	6104
	Apr. 7	O. V. 12	5		
Apr. 9		H. N. 57	15	Brest	
		O. R. 20	2		
	Apr. 12	O. V. 2	2		
		(Special)			
	Apr. 13	O. P. 13	4		

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Apr. 13 Apr. 15	Apr. 15 Apr. 15 Apr. 19 Apr. 20 Apr. 21 Apr. 22 Apr. 23 Apr. 22 Apr. 23	Group 26*b	7	Brest & St. Nazaire Brest	18325 9875
		Group 27†	3		
		O. V. 13	10		
		O. R. 21	3		
		O. P. 14	8		
		O. R. 22	1		
		O. R. 23	1		
		O. V. 3			
		(Special)	1		
		Group 28*	2	Brest	9200
Apr. 24	Apr. 23	O. R. 1		Brest	.
		(Special)	5		
		H. N. 61	8		
		O. V. 14	17		
Apr. 29	Apr. 25	O. R. 24	1	Brest & St. Nazaire	13325
		O. R. 25	1		
		Group 29*c	8		
Apr. 16	Apr. 29	O. R. 26	1	Brest	.
		O. R. 27	1		
		H. N. 59	5		
			126		62615

(a) 4 Destroyers from Brest.

(b) 4 Destroyers from Brest.

(c) 2 Destroyers from Brest.

May, 1918

Date of arrival	Date of departure	Convoy	No. of ships	Port of arrival	No. of troops
May 2	May 1	O. P. 15	3		
May 2		H. B. 63	11	Brest	
May 4		Special			
		Group 31†	1	Brest	8901
		Group 31†	2	Brest	3559
May 6	May 5	O. V. 15	17		
	May 5	O. R. 28	1		
	May 6	O. P. 15	3		
		Group 30*	5	Brest & Bordeaux	9483
	May 7	O. R. 29	1		
	May 7	O. R. 30	3		
	May 8	O. R. 31	1		
May 9		H. B. 1	8	La Pallice	
May 10		Group 33†	1	Brest	2863
May 10		H. N. 65	12	Brest	
	May 11	O. R. 32	2		
	May 12	O. V. 4			
		(Special)	4		
May 12		Group 32*	6	St. Nazaire & Bordeaux	11570
	May 13	O. V. 16	9		
	May 15	O. P. 17	2		
	May 15	O. P. 18	2		
May 18		Group 34†	3	Brest	10264
May 18		H. N. 67	9	Brest	
	May 19	O. V. 17	7		

SHIP MOVEMENTS (Continued)

May 22 -23	May 20	O. V. 19	4	La Pallice	31000 9597 16005 5291 10577
	May 21	O. R. 33	3		
		H. B. 2	8		
	May 22	O. V. 5-1 Special			
		Group 35*	14		
		H. N. 68	1		
		Group 36†	2		
	May 26	O. R. 34	8		
	May 27	O. V. 18	19		
	May 28	O. R. 35	3		
May 29	May 29	O. R. 36	4	Brest, St. Nazaire & Bordeaux	16005 5291 10577
		Group 37*	9		
		Group 38†	2		
May 30		Special		Brest	119110
		Group*	1		
			196		

June, 1918

Date of arrival	Date of departure	Convoy	No. of ships	Port of arrival	No. of troops
June 1	June 1	O. R. 37	1	Quiberon	21264
	June 2	H. N. 69	18		
	June 5	O. V. 19	11		
	June 5	O. R. 38	1		
	June 5	O. R. 39	2		
	June 5	O. P. 20	7		
		H. B. 3	8		
		Group 39a*	10		
		H. N. 70	8		
		O. R. 40	4		
June 9	June 9	O. V. 20	12	Brest & Bordeaux	342 15505 17110 10380
	June 10	O. R. 41	3		
	June 11	O. P. 21	2		
	June 12	O. V. 6			
	June 13	(Special)	6		
	June 14	O. R. 42	3		
	June 17	O. V. 21	11		
		H. N. 71	19		
		Group 40†	6		
		O. R. 43	3		
June 18	June 18	Group 41	4	Brest & St. Nazaire	17110
	June 19	O. R. 44	1		
	June 19	H. B. 4	8		
		Group 43	1		
June 22	June 23	O. P. 22	2	Brest	10380
	June 23	O. R. 45	2		
	June 23	O. R. 46	2		
	June 23	O. R. 47	2		
	June 24	O. R. 48	1		
	June 25	H. N. 72	8		

SHIP MOVEMENTS (Continued)

June 26	June 26	Group 44 O. V. 22 Group 42 O. R. 49 June 30	2 25 13 2 2	Brest Brest & St. Nazaire	5751 33897
			210		104249

(a) 2 Destroyers from Brest.

July, 1918

Date of arrival	Date of departure	Convoy	No. of ships	Port of arrival	No. of troops
	July 1	O. R. 51	8		
	July 1	O. P. 23	7		
July 4		H. N. 73	18		
July 5		Group 45	7	Brest	12533
	July 7	O. V. 23	20		
	July 8	O. R. 52	6		
	July 8	O. P. 24	8		
July 9		Von			
		Steuben	1	Brest	2622
July 12	July 12	Group 46	13	Brest	34365
		O. R. 53	1		
July 12		H. B. 5	15		
July 15		Group 47	1	Brest	10530
	July 15	O. R. 54	5		
	July 16	O. V. 24	16		
	July 16	O. R. 55	4		
	July 17	O. R. 56	6		
	July 18	O. R. 57	1		
July 18		Group 48	5	Brest	21907
July 19		H. N. 75	12		
	July 19	O. R. 58	3		
	July 20	O. R. 59	3		
July 21		Group 49	11		5079
July 22		Group 50	2	Brest	20365
	July 23	O. R. 60	1		
	July 24	O. R. 61	2		
	July 24	O. V. 25	19		
	July 25	O. R. 62	7		
	July 25	O. R. 63	2		
July 28		H. B. 6	18		
	July 29	O. R. 64	1		
July 30		Group 51	12	Brest & St. Nazaire	26592
	July 22	O. V. 7 (Special)			
			236		133993

SHIP MOVEMENTS (Continued)

August, 1918

Date of arrival	Date of departure	Convoy	No. of ships	Port of arrival	No. of troops
	Aug. 1	O. R. 65	5		
	Aug. 2	O. R. 66	3		
	Aug. 3	O. V. 26	19		
	Aug. 4	O. P. 25	5		
	Aug. 6	O. R. 67	3		
Aug. 6		Group 52	7		
	Aug. 9	O. R. 68	4	Brest	18941
Aug. 10		H. B. 7	16		
Aug. 11		Group 54	3	Brest	16525
Aug. 12		Group 53	8	Brest	18019
Aug. 12		H. N. 78	13	Brest	
	Aug. 13	O. V. 27	23		
	Aug. 13	O. R. 70	3		
	Aug. 14	O. R. 69	9		
	Aug. 15	O. R. 71	1		
	Aug. 17	O. R. 72	2		
	Aug. 18	O. R. 73	2		
Aug. 18		H. B. 8	12		
Aug. 18		Group 55	6	Brest	13942
Aug. 20		H. N. 79	6	Brest	
	Aug. 21	O. V. 74	4		
	Aug. 21	O. V. 28	20		
	Aug. 22	O. R. 75	2		
	Aug. 25	O. R. 76	2		
	Aug. 25	H. B. 9	11		
Aug. 25		Group 56	6	Brest	15621
Aug. 27		Group 57	3	Brest	10328
Aug. 28		H. N. 80	9	Brest	
	Aug. 29	O. R. 77	6		
	Aug. 29	O. V. 29	27		
	Aug. 30	O. R. 78	3		
	Aug. 30	O. R. 79	2		
			245		
					93376

September, 1918

Date of arrival	Date of departure	Convoy	No. of ships	Port of arrival	No. of troops
Sept. 3		Group 58	12	Brest	28799
Sept. 3		Group 59	3	Brest	12750
Sept. 3		H. B. 10	12		
	Sept. 4	O. R. 80	2		
	Sept. 6	O. V. 30	28		
	Sept. 6	O. R. 81	9		
Sept. 6		H. N. 81	4	Brest	
Sept. 7		Group 60	3	Brest	16308
	Sept. 9	O. R. 82	3		
	Sept. 10	O. R. 83	1		
Sept. 11		H. B. 11	11		
Sept. 12		Group 61	8	Brest	17387

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Sept. 13	Sept. 12	O. R. 84	3			10266
Sept. 13		Group 62	3			
		H. N. 82	3			
	Sept. 14	O. R. 85	2			
	Sept. 14	O. V. 31	18			
	Sept. 16	O. R. 86	7			
	Sept. 18	O. R. 87	1			
Sept. 19		H. B. 12	14			
	Sept. 20	O. P. 26	3			
Sept. 21		Group 63	9	Brest		20807
Sept. 22		H. N. 83	6	Brest		
	Sept. 22	O. V. 32	25			
	Sept. 23	O. R. 88	7			
	Sept. 23	O. R. 89	2			
Sept. 24		Group 64	3	Brest		5170
	Sept. 25	O. R. 90	3			
	Sept. 26	O. R. 91	1			
Sept. 27		H. B. 13	9			
Sept. 28		Group 65	11	Brest		23349
Sept. 29		Group 66	2	Brest		8417
Sept. 29		H. N. 84	6	Brest		
Sept. 30	Sept. 30	O. V. 27				
			261			143253

October, 1918

Date of arrival	Date of departure	Convoy	No. of ships	Port of arrival	No. of troops
	Oct. 1	O. R. 92	4		
	Oct. 1	O. R. 93	6		
	Oct. 2	O. R. 94	3		
Oct. 4		Group 68	3		
Oct. 5		H. B. 14	25	Brest	9930
Oct. 6	Oct. 5	O. R. 95	2		
Oct. 6		Group 67	8	St. Nazaire	25208
Oct. 7	Oct. 6	O. R. 96	1		
Oct. 7		H. N. 85	7	Brest	
		Group 69	1	Brest	9326
	Oct. 8	O. R. 97	4		
	Oct. 8	O. V. 34	19		
	Oct. 9	O. R. 98	1		
	Oct. 11	O. P. 27	7		
	Oct. 12	O. R. 99	1		
Oct. 13		H. B. 15	26		
Oct. 13		Group 70	7	Brest	18502
Oct. 15		Group 71	3	Brest	7767
Oct. 15		H. N. 76	11	Brest	
	Oct. 15	O. V. 35	13		
	Oct. 16	O. R. 100	6		
	Oct. 16	O. R. 101	5		
	Oct. 17	O. R. 102	1		
Oct. 20		Group 72	7	Brest	12649
Oct. 20		H. B. 16	11		
	Oct. 20	O. R. 103	1		

SHIP MOVEMENTS (Continued)

Oct. 21	Oct. 22	Group 73		Brest	7600
	Oct. 22	O. R. 104	6		
	Oct. 22	O. R. 105	1		
Oct. 23	Oct. 24	H. N. 87	5	Brest	
		O. V. 36	23		
Oct. 25	Oct. 25	Group 75	2	Brest	3817
		O. R. 106	2		
Oct. 26	Oct. 27	Group 74	7	Brest	12248
		O. R. 107	1		
Oct. 29	Oct. 29	H. B. 17	6		
	Oct. 29	O. R. 108	2		
	Oct. 29	O. R. 109	10		
	Oct. 30	O. P. 28	7		
	Oct. 30	O. R. 110	1		
	Oct. 31	O. R. 111	1		
			260		
					107047

November, 1918

Date of arrival	Date of departure	Convoy	No. of ships	Port of arrival	No. of troops
Nov. 1		H. N. 88	13	Brest	
	Nov. 1	O. P. 29	2		
	Nov. 1	O. R. 112	1		
	Nov. 1	O. V. 37	12		
	Nov. 2	O. P. 30	2		
	Nov. 2	O. R. 113	1		
Nov. 3		Group 76	6	Brest & St. Nazaire	11326
	Nov. 3	O. P. 31	1		
	Nov. 5	O. P. 32	4		
	Nov. 5	O. R. 114	1		
Nov. 6		H. B. 18	28		
	Nov. 6	O. P. 32	2		
	Nov. 6	O. R. 115	2		
	Nov. 7	O. P. 34	1		
	Nov. 7	O. R. 116	1		
Nov. 8		Special			
		Group	1	Brest	5711
Nov. 8		H. N. 89	18	Brest	
Nov. 9		Group 78	11	Brest	23543
Nov. 9		Group 79	2	Brest	5359
	Nov. 9	O. R. 117	1		
	Nov. 10	O. R. 118	1		
Nov. 11		H. N. 90	2	Verdon	
	Nov. 11	O. R. 119	7		
Nov. 12		Group 81	2	St. Nazaire	30
	Nov. 12	O. R. 120	3		
Nov. 13		H. B. 19	26		
	Nov. 13	O. R. 122	1		
	Nov. 14	O. R. 123	1		
Nov. 15		Group 80	2	Brest	28
	Nov. 15	O. R. 124	1		
	Nov. 16	O. R. 125	2		
	Nov. 16	O. R. 126	1		
	Nov. 18	O. R. 127	1		

The American Navy in France
SHIP MOVEMENTS (Continued)

	Nov. 18	O. R. 129	1		
	Nov. 20	O. R. 131	1		
Nov. 22		Group 82	4	Brest & Bordeaux	6793
Nov. 22		Group 84	1	Brest	1096
Nov. 23		H. N. 91	5	Quiberon	
Nov. 24	Nov. 23	O. P. 35	1	Bordeaux, Brest & St. Nazaire	
		Group 83	5		3061
Nov. 25		H. B. 20	26		
Nov. 28		Group 85	1	Brest	
			212		
					56946

The Convoy System

STATEMENT SHOWING NUMBER OF TROOPS DEBARDED AT
FRENCH PORTS SAILING DIRECT FROM UNITED STATES
from June, 1917, to November, 1918, inclusive

Chapter VI

STORESHIP CONVOYS

Storeship convoys, were so known in order to distinguish them from the troopship convoys. The latter were denominated as groups, and were numbered consecutively, Group One, Group Two, and so forth. The first consisted of neutral and Allied shipping, carrying cargoes on private or on Government consignment—at times a few troops might be placed on such ships. The second carried only troops, troop baggage, and such Army stores as their capacity permitted.

The speed of our storeship convoys varied from seven knots to nine and one half knots. But troopships had to be capable of making at least twelve knots. In the earlier part of the war, the storeship convoys reaching the coast of France were not large. With the rapid increase of our Army, the convoys increased both in size and in numbers, and were largely composed of vessels carrying stores for the maintenance of the American Expeditionary Force.

At first, all storeships for the west coast of France were embodied in New York, Hampton Roads or Sidney convoys, so designated from the name of the port they sailed from. A fourth convoy, called the Homeward-to-Bay-of-Biscay convoy was established later. This consisted only of vessels for French ports, while the first three convoys contained ships both for the British Isles and for France. British, French and American vessels took part in escorting the first three convoys. The last convoy was escorted only by French and by American vessels.

All convoys bound eastward were known as Homeward-bound convoys, and all convoys bound westward were known as Outward-bound convoys. Thus convoys coming eastward from New York were called HN convoys, that is to say, homeward-bound from New York. Convoys sailing from Verdon for the United States or other ports of the Western Atlantic were called OV convoys, that is to say, outward-

bound from Verdon. Verdon is the port at the entrance to the river Gironde.

The Sidney convoy and the Hampton Roads convoys were the slower ones, making seven knots speed. The New York convoy and the Home-to-Bay-of Biscay convoy were faster. They were made up of vessels capable of a speed of nine and one half knots or even more, although this was sometimes reduced to nine knots.

By means of a special chart originally prepared by the British and somewhat modified from time to time, the various rendezvous where escorting vessels would meet incoming convoys could be established. These rendezvous were called the destroyer rendezvous, and were capable of an infinite number of variations in respect both of latitude and longitude. This chart gave the rendezvous and, also, the course on which the incoming convoy was approaching the rendezvous, thus making it a comparatively easy matter for the escorting vessels to establish contact with the incoming convoy.

The possession of this chart was vital to the safety of our convoys and was most jealously guarded. Even if a cable or radio message were deciphered by the enemy, it was necessary to have this chart before the message could be understood by him.

The practice employed in handling these storeship convoys differed somewhat. The Sidney convoy and the Hampton Roads convoys were met at the destroyer rendezvous by American and British escort vessels from Queenstown. The rendezvous was at a distance from the French coast or from the British coast which varied with the westernmost submarine activity.

Arrived off the English Channel, these convoys split into various parts, some going up-Channel, some into the Irish Sea, and some to Brest. The escorting of vessels going up-Channel was taken over by destroyers out of Devonport. The vessels bound for France were brought there by a destroyer escort of British and American vessels from Queenstown, and were met off the entrance to Brest by one or two small French torpedo-boats which acted as pilots to the anchorage.

This system was maintained until the final discontinuance of the convoy system after the signing of the armistice.

The New York convoys, in the beginning, were met at the rendezvous by an American and British escort from Queenstown. They were brought to a point some eighty or ninety miles west of the coast of France and there met by a mixed French and American escort from Brest. The French and American ships then took over the escorting of all vessels bound for France, and saw them into St. Nazaire or to Brest. It was desired to have the convoys enter port during daylight hours. As Brest was materially to the westward of St Nazaire its relative nearness was often a governing factor in the decision as to which of the two ports the convoy should first be conducted to. Other governing factors were the number of escorting vessels available, what part of the coast the majority of the incoming ships was consigned to, the condition of the two ports in respect to their relative freedom from mines, and the intensity of submarine activity in the Bay of Biscay.

As our forces were augmented, this procedure was changed. A mixed French and American escort met this convoy at the destroyer rendezvous. There the convoy was split into two parts, the British escort taking over that part destined for the British Isles and the American and French escort taking over the part intended for France. On some occasions, these two parts proceeded independently from the destroyer rendezvous, and on other occasions they were kept together until nearer the coast of France, when they were divided.

The two parts proceeded separately when there was—as there usually was—a maximum of submarine activity off the entrance to the English Channel. When this condition existed, it was advisable to keep the French-bound part of the convoy clear of the infested area.

The two parts proceeded together intact when submarines seemed temporarily less active in this area. The convoy intact could be furnished better protection by keeping it under a combined escort as long as possible.

The Homeward-to-Bay-of-Biscay convoys were met at

the destroyer rendezvous by a mixed French and American escort, and were taken direct to the Gironde River or to St. Nazaire or to a position fairly close to the French coast. If the latter, then vessels for Bordeaux and La Pallice were taken thence direct to the Gironde. Vessels for St. Nazaire and Brest were taken to Quiberon Bay, or occasionally, particularly valuable ships were taken direct to Brest.

The procedure adopted depended upon the number of vessels bound for the various ports, the number of vessels available for escort duty, and upon the degree of submarine activity. The governing principle was to get the ships through the submarine zone and to their final destination with as little delay as was possible commensurate with the demands of safety.

This Homeward-to-the-Bay-of-Biscay convoy system was the last one established, and the first convoy of it sailed from the United States on April 21, 1918, and reached the coast of France May 10, 1918. The Commodore of this convoy was an officer of the Reserve of the Regular Navy, while the Commodore of the other storeship convoys was a British Naval Officer. There was, however, a Reserve Office of the American Navy detailed as Vice-Commodore of the other storeship convoys—he took charge of the vessels consigned to France after their separation from the part bound for the British Isles.

The escort which sailed from France to meet the New York convoy, the Sidney convoy, and the Hampton Roads convoy, usually left from Brest or St. Nazaire, occasionally from Verdon. They took with them such empty storeships as were ready to depart, and moved in time to get such ships through the submarine zone and then to join the east-bound convoy. The practice—varied somewhat by the area and intensity of submarine operations—was to escort the west-bound vessels for about forty eight hours, to leave them after dark and to join the incoming convoy on the following morning.

The west-bound convoy system had been originated by the French. The French also arranged the escorting and the routing. The number of escort vessels was about equally divided between French and American, although usually there

were one or two more American vessels than there were French vessels.

At first, the escort of the Verdon convoys simply took them westward, and after clearing the danger zone, returned to port. The routing of the convoy was thus made a comparatively simple matter at that time. However, with the institution of the Homeward-to-Bay-of-Biscay convoys, it became necessary to utilize the Verdon convoy escorts to meet the incoming HB convoys. In turn, this required the timing of the western sailings so as to fit in with the arrivals of the east-bound convoys. Consequently, the system became somewhat complicated.

As the majority of the ships in the HB convoy belonged to the United States, and as we had been handling more of the combined east-bound and west-bound movements than the French had, it was easier for us to extend our system to include the HB convoys than it was for the French to extend their system.

We took over in their entirety the arrangements for the HB convoys, and in order to handle the westward sailing from Verdon effectively, we discussed with the French in ample time the question as to when and where the outward-bound escorting vessels would be required to join the east-bound convoy. The French thereupon routed the westward-bound convoys to make this procedure possible.

On account of the time gained by our being able to send escorting vessels direct from Brest to join the east-bound convoy, we were able to increase the number of escorting vessels — one, two, or three destroyers went direct from Brest to the rendezvous for this convoy. As they usually sailed without convoy these escorting vessels could be despatched later than if they had to take ships east-bound. If, however, the procedure followed tended to delay ships discharged and ready to sail, we utilized the one, or two, or three destroyers to take one or two ships out.

As a result of the above-outlined arrangements, the orders for the first six HB convoys were issued by the Commander, U. S. Naval Forces in France. Afterward, however,

upon instructions from the French Ministry, the arrangements for the escorting and for the handling of these convoys were assumed by the French authorities. The practical handling of these convoys continued as before, the French always inviting us into conference before making their dispositions and accepting any suggestion we made for the improvement of their arrangements.

Chapter VII

COASTAL CONVOYS

Upon the arrival of the yachts on the coast of France, it was at once evident that the smaller vessels did not have the seagoing qualities or the speed which would make them of use for escorting ships on the high seas. Accordingly, they were assigned to duty with the coast convoy system established on the west coast of France.

At the beginning of our operations there were eight yachts available for this purpose. These were divided into four groups of two each. The French maintained four groups of three ships each, and, in addition, reinforced each of our groups with a trawler or other small vessel.

Coastal convoys were made up in Roscanvel Bay, across the harbor from Brest, and sailed for Penzance, England, and for the south of France, leaving port about four in the afternoon. At the same time a convoy sailed from Penzance for Brest.

The convoy leaving Brest for the northward, after clearing the approaches passed through the Chenal du Four or the Chenal de la Helle. If mines were reported, they passed to the westward of Ushant. They were escorted across the Channel for such a distance as would permit the escort to leave and to join the convoy from Penzance at a predetermined rendezvous. This south-bound convoy usually was picked up early in the morning, and escorted to Brest where it arrived in the forenoon.

The same escort then made up a south-bound convoy during the afternoon. At about four p. m. it sailed for the south and made a night run for Quiberon Bay, arriving there the next morning. Ships for St. Nazaire then proceeded independently as their route from Quiberon Bay lay through inland waters where they were safe from submarine attack. Ships for points beyond St. Nazaire were taken over by a French coastal escort.

Enemy submarine activity on the Atlantic Coast of France was confined almost entirely to the part north of St. Nazaire and south of Bordeaux. Why the enemy neglected this intervening part of the coast is not known, unless it was because they feared the mine-fields laid by them off the approaches to La Pallice and Bordeaux.

On the afternoon of the day the convoy reached Quiberon Bay, the escort which had taken the convoy thither made up a new convoy for the north. This sailed about four in the afternoon, and made a night run to Brest. The convoy then anchored in Roscanvel Bay awaiting the escort to the northward.

It will be observed that an escort which sailed Monday afternoon was at sea nearly all the time until the following Thursday, and that it sailed again the next Tuesday.

These yachts were intended for fair-weather cruising only. The greater part of their escort duty was performed at night, under all conditions of weather. The chief part of their run lay through channels difficult to navigate. Frequently, they sailed in gales and fogs. When these things are considered, it is believed no vessels of the American service are deserving of more credit for duty well done than are these small yachts.

Figures are not available, but it is thought that less than a half-dozen ships were grounded during the entire operation of the convoy system. The fact that there were very few collisions, also, speaks well for the handling of the convoys, as they included types and conditions of ships and all types of masters, and then ran, as already mentioned, through narrow channels in weather both foggy and clear. The smallest of these yachts, the *CHRISTABEL*, made thirty successive trips before being compelled to lay off on account of disabled steering gear.

For a long time this convoy was remarkably free from submarine attack. It was hard to understand why a more determined effort was not made by the enemy against this convoy—by force of circumstances, it ran over practically the same route day in and day out, was weakly escorted, and the

speed of the ships was slow, varying from six to eight knots under favorable weather conditions. It was the practice to reinforce the convoy by additional yachts or destroyers whenever it contained important storeships; nevertheless, the only reasons that can be assigned for the enemy's not attempting greater things against it were because the German submarine commanders were afraid to work so close to the coast, and, perhaps, because they thought that with the number of submarines they had, more important results could be obtained by attacking other convoys.

As the result of experience in this work, the commanding officers of the escorting vessels began to recommend that the running of the convoy by night be discontinued—they recommended that the greater part of the run be made by daylight. The reasons were that better supervision could be exercised over the convoy and aerial protection could be given.

In January, 1918, an enemy submarine began to attack this convoy with great success each night. The attack usually took place off the point of Penmarch where the convoy passed through the ray of light emanating from that point, and where there was open water to the westward. A series of attacks was made on a number of successive convoys. They culminated in the sinking of four ships out of the same convoy on the night of January 5-6, 1918.

The question of changing the operation of this convoy was taken up, and as a result a re-arrangement was made.

The French and British took over all the escorting of the ships of the cross-Channel convoys, and the French and Americans took over the escorting of convoys between Brest and the south of Brest. Eight groups of escort were formed, each group consisting of three comparatively slow ships and one fast ship. The Americans furnished three of the eight groups, and lent a small destroyer to help make up a fourth group. Each American group included three yachts and one small destroyer.

The convoy sailed from Brest in the morning and arrived at Quiberon the same evening. It sailed thence on the following morning and reached La Pallice that night. The same escort sailed the next morning from La Pallice with a north-

bound convoy. It arrived at Quiberon that evening, spent the night there, got underway the following morning, and reached Brest that night. Aerial protection was given along the entire route whenever the weather permitted.

Immediately upon this re-arrangement of the system the convoy became immune from successful attack.

Attacks were made on the convoy upon several occasions. Each time the attack was unsuccessful, and in two instances at least, it is thought that the attacking submarine was destroyed or was so seriously damaged as to be forced to put into a Spanish port for internment.

This period of immunity lasted until May 18, 1918. On that day the JOHN McCULLOUGH, with a speed of about six knots, escorted by one yacht, could not keep up with the convoy, and was torpedoed and sunk south of Belle Isle. After this time a few vessels were torpedoed. But the number was so small that the daylight system of convoying was thoroughly justified. Statistics indicate that the percentage of losses in this convoy after daylight-sailing was adopted was the smallest of any organized convoy.

Impressed by the success of the daylight system, the French proposed to the British authorities who had charge of the cross-Channel convoy that that convoy should be run by day. The British opposed this proposition at first. Then, as a compromise, the British consented to run the cross-Channel convoy in daylight for ten days each side of the period of the full moon—it was at this time that submarine attacks by night were the most frequent and most effective.

Again the daylight convoy system proved its merits. Finally, the entire cross-Channel convoy service was run during the day. Aeroplanes escorted this cross-Channel convoy and a dirigible accompanied it from the time of its departure until it was picked up by another dirigible on the other side of the Channel.

Besides the ships that crossed the Atlantic to France, there were a great many vessels carrying stores, particularly coal, from the British Isles to France. Our own Army had many vessels running on this route, the number gradually increasing until from four or five there were more than ninety.

Chapter VIII

THE SHORE ESTABLISHMENT

As there was no possibility of a Fleet action in the Bay of Biscay, the work there consisted entirely of the protection of convoy and in anti-submarine measures. For this reason, the work there was carried on in its entirety by destroyers, converted yachts, gunboats, torpedo-boats, mine-sweepers and the necessary auxiliaries. Due to the multiplicity of duties, there had to be a central operating agency for the purpose of co-ordinating all the activities of these vessels.

Upon our arrival on the coast of France, we found that the operating organization of the French naval service was quartered in the city of Brest. Although the Senior American Naval Officer desired to remain afloat, and thence to direct the activities of our forces, this was not desired by the French, who wished him to be where they could be in closer touch with him. For this reason, he, with his staff, obtained offices ashore while flying his flag from one of the ships in the harbor.

There were many good reasons for this procedure.

It was necessary that the officer directing operations should be where he could obtain in the shortest possible time all information available in regard to the movements of the enemy and of the Allied forces, and this information could be given him both by land wire and by radio. The radio sets ashore were connected by land wire and were of greater power than those afloat. There would be a loss of time in getting the information from the cable office on shore to the ships at anchor or at sea. As information came from many sources other than ships, such sources as the Ministry of Marine in Paris, the British Admiralty in London, the Force Commander in London, and the Navy Department in Washington, there would have been a loss of time if the Flag Office had been kept at sea.

Rear Admiral W. B. Fletcher and his staff established themselves in a small building on the Penfield River which

flows through the city of Brest. The office was not far above where this river enters the Rade Abri as the inner harbor of Brest is called. The Chief of the Brittany Patrol, a captain in the French Navy, occupied the same offices. Not long afterward, however, both sets of offices were moved to the building of the Credit Lyonnaise, one of the most modern structures in Brest.

At this time the personnel of the shore establishment was very limited. It consisted of the Admiral, himself, the Flag Lieutenant, the Radio Officer, the Supply Officer, the Force Engineer Officer, the Force Medical Officer, Force Repair Officer, together with a few junior officers of the line, and some clerical assistance.

There are very few records available from which information can be obtained in regard to the activities in the early days of the American operations in France.

A radio receiving set was placed in one room of the office building. The only method of transmitting messages for radio was by landwire to Kerlaer.

Repair work for our forces was done in the French Navy Yard located some distance up the Penfield River. As has been elsewhere noted, repair work was unsatisfactory, not so much as to quality but as to the time it took to get the work done. It was necessary for vessels to bring the article needing repairs to the repair officer's office. He would then send it to the Navy Yard, and when the work was completed the ship would be informed in order that it might call for it.

The only boats available at this time were those carried by the converted yachts. Their boats were for the most part very small and unseaworthy, not suitable for transporting liberty parties or any considerable amount of stores. During bad weather the yachts were cut off from communication with the beach, and conditions in this respect were very unsatisfactory.

The stores available for issue were inadequate both in quantity and quality.

As the number of ships operating began to increase, the necessity for more adequate repair facilities increased pro-

portionately. The arrival of the PANTHER with the first five destroyers eased the situation somewhat, but her inability to maintain our vessels soon became evident, and our forces were augmented by the arrival of the PROMETHEUS, Captain F. Lyons, on February 18, 1918, and of the BRIDGEPORT, Captain E. P. Jessop, on August 5, 1918. The arrival of these vessels made it possible to spare the PANTHER from Brest—she was sent to the Gironde River for duty with the vessels based on that District.

The PROMETHEUS and the BRIDGEPORT not only maintained the vessels of our force, but also did a vast amount of work for troopships and storeships arriving on the coast of France. The magnitude of this work is evidenced by the fact that the PROMETHEUS did three hundred and thirty jobs for naval vessels based on France; nine hundred and thirty two jobs on troopships and storeships and French men-of-war; two hundred and one jobs for naval aviation forces, seven hundred and twenty eight for the naval base at Brest, and seventy two for the Army at Brest.

Every effort was made to eliminate red tape and unnecessary correspondence, the sole idea being to undertake and finish repairs with the least amount of inconvenience to the vessels requiring them and in the shortest possible time.

Upon one occasion, a French lieutenant in command of the "Garde Pecheur" (small boats that protected the fishing fleet) came into the Flag Office and stated that one of his small torpedo boats had broken part of her machinery and that the French Navy Yard estimated that approximately one month would be required to repair it. He asked if it would be possible for the PROMETHEUS to undertake this work and, if so, how long it would take.

It was about seven o'clock in the evening. The Commanding Officer of the PROMETHEUS was called on the telephone, was told of the nature of the work and was asked if he could undertake it. He replied that he could but thought that he could not finish it that night. Upon being asked when he would be able to complete it, he said, "Sometime tomorrow morning", and requested that the torpedo-boat be

sent alongside the PROMETHEUS as soon as possible.

The French officer was amazed as well as appreciative. He asked what papers must be submitted before the work could be begun, and his amazement was still greater when he was told that all that was necessary was for him simply to send his boat alongside the PROMETHEUS and to give the article needing repairs to the Commanding Officer.

The PROMETHEUS and BRIDGEPORT were the cause of constant wonderment to the French officers and French commissions who visited those ships. They were one of the things visiting officers always wanted to see and they evoked nothing but the highest commendation. Well they might, for there were few tasks, no matter what their magnitude, that these vessels could not and did not undertake and bring to a successful conclusion. If the job were too great for the men to handle on the ship, mechanics were landed, and the work was done on shore.

Efficient as was the work of these repair ships, by the spring of 1918 it became evident that they were not sufficient, even with the assistance of the French dockyards, to care for the necessary repairs and alterations for American vessels operating in French waters. The facilities of some of the Army shops of the coast forts were available for use by the Navy, and arrangements were made to have work done for us by the French navy yard and by private concerns; nevertheless, current repairs and casualties increased to such an extent that the establishment of a repair station on shore became imperative.

In April, 1918, therefore, a survey of the situation was made. It was decided to ship from the United States the necessary buildings, tools, equipment, supplies and personnel, to erect and operate three shops. One of these was to be located at Brest, one at Lorient, and one at Pauillac.

An outline list of the requirements for each of the three proposed stations was cabled to the United States. The task of assembling the material and personnel was begun about June 1, 1918. An organization to expedite the necessary shipments was established in Washington. Small organizations

were established in the navy yards at New York and Philadelphia to receive the material as it was delivered from contractors and from the navy yards, to obtain the necessary shipping space and to see that shipments were made expeditiously and in an orderly manner.

The first consignments of material reached France about September 15, 1918. The last consignments, although these did not complete the delivery of all the material required for the repair shops, arrived about December 5, 1918. When the armistice was signed, the shipment of the small quantity of material remaining undelivered was cancelled by cable.

THE REPAIR SHOP AT PAUILLAC

On account of the proposed location of the Pauillac shop, and the fact that power and other conveniences of the French navy yard were not available for our use, it had been decided to make the Pauillac shop building portable and to have the whole outfit self-sustaining. But as there was a large aviation repair shop at Pauillac and large commercial plants at Bordeaux—it was eventually decided not to erect shops for ourselves at Pauillac but to hold shops and their equipment ready for installation and use at any point where war activities might make additional repair facilities necessary.

About two-thirds of the Pauillac shop material had been delivered at that place and held in storage. The remainder of the material, including the buildings themselves, was delivered at Brest. The buildings were erected as part of the Brest repair shops. It will be seen, therefore, that the Pauillac repair shop was never erected.

THE REPAIR SHOP AT LORIENT

It was originally intended that the repair facilities at Lorient should be very extensive. But, owing to the fact that the contemplated assignment of naval vessels to Lorient did not take place, it was soon found that the only facilities actually needed were such as would be sufficient to care for the ten mine-sweepers basing on that port.

Then the French had assigned for our use, an empty build-

ing about forty feet wide by sixty feet long, together with a plot of ground capable of holding a repair shop one hundred and forty feet long by sixty feet wide, a small storehouse, garage, latrines, and so forth. In addition, they had turned over an old storehouse for taking care of the repair shop supplies.

By September 15, 1918, a few tools obtained from the French and from the Army had been connected up in the building assigned by the French. The only addition made to this equipment was some machinery that arrived for this shop. This, with the assistance of the French navy yard, proved ample to meet the requirements of the U. S. Naval work at Lorient. The greater part of the tools and the shop buildings originally intended for Lorient were delivered at Brest in the latter part of November, 1918, and owing to the cessation of hostilities, were returned to the United States soon after.

THE REPAIR SHOP AT BREST

Owing to the fact that the two repair ships were stationed at Brest, it was not originally intended that the repair shop to be installed at this base should be as extensive as those designed for the other two bases. But the increase of shipments of men and material for the American Army through this port soon made it evident that the repair shop here should be the largest and most extensive of all.

About September 3, 1918, therefore, steps were taken to erect here not only the buildings planned for this place but, also, those which were originally designed for erection at Pauillac.

A small temporary shop and garage for the base had been installed and was in operation. This covered two lathes, a shaper, a drill press, and a two-wheel grinder. There was, also, a small blacksmith shop.

The ground provided for us by the French was situated at the end of the Laninon Tunnel, between the tunnel and the nine-hundred-foot drydock of the French arsenal—not yet in operation. The site was covered with dredgings from the drydock entrance, and required an average cut and fill of

about six feet in order to bring it level for the erection of buildings. The plot was triangular in shape, four hundred and twenty-seven feet by two hundred and forty-six feet by four hundred and eighty-three feet. The levelling was done by the personnel of the Repair Unit, assisted from time to time by laborers from the Army, and by German prisoners.

The personnel received by the Repair Unit at different times between June 18 and November 30, 1918, amounted to about five hundred and forty men in all. Of these about one hundred and forty six were deflected to other stations or to other duty, so that there were left about three hundred and ninety four men available for our work. The men lived at Brest Air Station and at Carola Barracks under the commanding officers of those stations. Even this entire number was not actually available for shop work, because about sixty or seventy five men were detailed to various duties not connected with repairs or the construction of shops.

Erection began on September 15 with the raising of the first columns of the steel storehouse—this was one hundred feet long by twenty five feet wide. Columns of the main shop building—sixty feet by two hundred feet—were raised soon afterward. From that time to November 24, erection was continuous.

By November 24, 1918, the following buildings were finished; one storehouse, one hundred feet by twenty five feet, complete with bins; one main steel shop building, two hundred feet by sixty feet; one two-story steel electric shop, one hundred feet by twenty five feet; one plate-and-forgé shop, one hundred and twenty five feet by twenty five feet; one wooden office building, sixty feet by forty feet. There were various small buildings in addition.

On November 24, 1918, orders were received to discontinue the erection of buildings and the installation of machinery.

Besides the erection work done by it, the Repair Unit cared for the below-enumerated major items of work during this period:

- (a) Temporary repairs to the MOUNT VERNON, tor-

pedoed September 5, and in drydock at Laninon from September 7 to October 9. In this task the unit was assisted by the French Arsenal. The total number of man-hours credited to the unit for the job, including the time of men assisting on plates in the French plate-shop, was twenty nine thousand, four hundred and ninety.

(b) Repairs to the LONG BEACH. This vessel had been badly damaged and had entered drydock on May 24 at Port du Commerce. Work was being done by the French but progress was slow. Repair Unit men began to assist the French on July 18. After the completion of the work on the MOUNT VERNON, the men were placed on the LONG BEACH job. The repairs were completed November 19, 1918. The total number of man-hours credited to the Unit for this task, including work on the plates in the French plate shop was fifty two thousand, three hundred and ninety nine.

(c) Repairs to WESTWARD HO, torpedoed about August 18. Repairs carried out by the crew of the FAVORITE assisted by the Repair Unit. On this job, including work done in the French plate shop, the total number of man-hours credited to the Repair Unit was seven thousand, five hundred and two.

In addition to the major jobs listed, numerous smaller tasks were handled. Thirty nine motor boats belonging to the base and about one hundred and three automobile trucks were repaired. The number of principal job orders issued and completed each month were: in July, fourteen; in August, thirty; in September, forty three; in October, thirty nine; in November, seventy two.

The liaison section of the Unit looked after the docking of about six American ships per month in the French arsenal, and after the manufacture of all items needed there that were beyond the capacity of the repair ships.

The ordnance section took care of ordnance material and of the testing and overhaul of all depth charges issued to destroyers and yachts.

The radio section made all inspections of radio material and repaired it when necessary. It also installed all radio telephones and radio compasses on vessels operating from the base.

Additional construction for the base was accomplished as follows: the erection and fitting of Parc au Duc storehouse for the supply department; the closing in and installation of bins in the oil dock storehouse for the supply department; the wiring of all storehouses and office buildings throughout the base; the erection of a base garage.

Too much praise cannot be given to the officers and enlisted personnel of the repair ships and repair unit. Under the command of Captain F. Lyons and Captain E. P. Jessop, the crews of the PROMETHEUS and BRIDGEPORT took pride in that no work was too big to undertake and that, undertaken, it was to be pushed to a rapid and efficient conclusion. In addition, these ships being always in port, were able to give frequent entertainments for the pleasure of the crews of the other ships. They took a just pride in the importance of their work and it was a pleasure to command them. The same may be said of the repair unit which, arriving later, under the command of Lieutenant Commander N. C. Gillette and, assisted by the Fleet Constructor, Naval Constructor, C. W. Fisher, played an important part in the repair and maintenance of our force and of troop and store ships.

Chapter IX

COMMUNICATION SYSTEMS—TELEGRAPH
AND TELEPHONE

Soon after the advent of the United States Naval Forces in France, it became quite evident that Navy-controlled telephone and telegraph lines would be necessary throughout France, but principally along the west coast, where the center of naval activities would lie. A system must be provided adequate to handle the large amount of communications incident to the organization and operation of our forces.

The first steps taken toward meeting this necessity were the placing of naval operators in the principal French telegraph centers, and the leasing of lines for the most important naval lines of communication. Operators were stationed in the telegraph offices at the Prefecture, Brest; at the Central Office, Nantes; at the Central Office, Paris; at the Prefecture, Lorient; at the French Naval Commandant's, St. Nazaire; at the Prefecture, Rochefort; and at the French Naval Commandant's, Bordeaux.

Communication with the Headquarters of the Force Commander at London being most important at this time, a line between Brest and London was leased—December, 1917. Negotiations were entered into with the French for another line between Brest and Nantes; this line would greatly facilitate telegraphic communication with naval offices on the southern part of the Atlantic coast of France.

These preparations were only preliminary. In March, 1918, after a careful review of the situation, it was decided that the system of French lines, military and civil, could not expeditiously handle our communications, and that there were not enough lines available for lease to fulfill our requirements. The Signal Corps of the American Expeditionary Force was by this time equipped, in respect both of personnel and material, to undertake the work—decision was reached that exclusive Navy lines must be constructed.

The lines already constructed by the Signal Corps for the use of the American Army served only a few of the places where the Navy was established. Naval air stations were being established as rapidly as possible, and they could not be operated efficiently without rapid and thoroughly reliable communications—each air station must have a telephone and telegraph connection with the District Commander concerned.

The Navy was not equipped to undertake the installation of the extensive telephone and telegraph system contemplated. A great part of the trained personnel of the Bell Telephone Company had been recruited into the Army Signal Corps, and that corps held nearly all of the available material for the necessary construction work.

Representatives of the naval forces in France and of the Chief Signal Officer of the Army met in conference. It was agreed that the Signal Corps, on request from us, would construct all land-wires needed by the Navy in France and would furnish material for and would install all switchboards. The Navy agreed to give assistance in men and motor trucks whenever possible.

With a view of determining just what construction would be required for our purposes, present or future, the Commander, U. S. Naval Forces in France made a survey of the west coast of France in May 1918. This survey showed that the lines and private branch exchanges listed below were necessary.

It was planned to establish private branch exchanges in the following-named offices: the Flag Office; the District Commander's Office; the Aviation Headquarters Office; the Carola Barracks; the Beachmaster's Building; the Disbursing and Transportation Office. Tie-lines were installed between the switchboards and the Army and French central.

The long-distance lines planned for were:

One circuit from the District Commander's Office to Brest Air Station;

One circuit from the District Commander's Office to Air Station Guipavas;

One circuit from the District Commander's Office to Air Station l'Aber Vrach;

One circuit from the District Commander's Office to Air Station Treguier;

One circuit from the Flag Office to Signal Station Point Mathieu;

One circuit from the Flag Office to Signal Station Point Espagnol;

One circuit from the Flag Office to the District Commander's Office at Lorient.

For the Lorient District the plans included:

A private branch exchange in the District Commander's office at Lorient.

A private branch exchange in the Port Officer's office, St. Nazaire.

The long-distance lines agreed upon for the Lorient District were:

One circuit from the District Commander's board to Ile Tudy Air Station;

One circuit from the District Commander's board to the Air Station La Trinite, to St. Nazaire;

One circuit from St. Nazaire to Air Station Le Croisic;

One circuit from St. Nazaire through Nantes to Air Station at Fromentine, with Air Station at Paimboeuf bridged on the line.

In the Rochefort District the plans covered:

A private branch exchange in the District Commander's Office, Rochefort.

The long-distance lines designed for the Rochefort District were:

Two circuits from the District Commander's Office to Royan, thence through a submarine cable laid by the Navy to Le Verdon, thence to Pauillac;

One circuit from the Air Station at Pauillac to the Air Station Moutchic and Air Station Gujan;

One circuit from Bordeaux to Lafayette High Power Radio Station; Croix d'Hins;

One circuit from the District Commander's board to Air Station, St. Trojan.

Our requests for the construction of the lines and for the

installation of most of the exchanges were in the hands of the Chief Signal Officer early in June, 1918. At that time, however, the Signal Corps was handicapped by a scarcity of men and material due to extensive construction work having been undertaken in the zone of the Army's advance; hence the Corps could not proceed with the installation of the Navy's long lines until August. Nevertheless, most of the switchboards were set up and placed in satisfactory operation before that time:

In many instances, our air stations were in isolated places, so far as communications were concerned. Of course, some sort of communication was absolutely necessary from the beginning of operations; finally, many obstacles having been overcome, enough French communication lines were obtained to tide over until our new lines could be constructed.

In August, 1918, a Signal Corps battalion was detailed to the general vicinity of Brest, Quimper and Lorient. Another battalion was sent to the St. Nazaire-Nantes region, and a third to the Rochefort District. To the battalion at Quimper there were added two hundred aviation men, twelve motor trucks and four trailers, and to the battalion at St. Nazaire sixty five men, two trucks and two trailers.

These naval men were housed in tents and worked under the supervision of the Army. With their ever-willing spirit and good comradeship with the Army contingent, they did excellent work and rendered invaluable aid in hastening construction. Small groups of aviation men, with the necessary motor equipment, were detailed south of the Gironde River under the supervision of Army non-commissioned officers, for short periods. These men, all former employees of the Bell Telephone and Telegraph System, completed the work in that district.

Not long after the signing of the armistice, there had been completed approximately seven hundred and fifty miles of telephone wires all simplex for telegraph. This construction included the laying of a four-conductor armored submarine telephone cable, five miles long, across the mouth of the Gironde. It included, also, the finishing of the following telephone and telegraph circuits:

Circuit Route	Mileage
1. Araachon to Moutchic to Pauillac to District Commander Rochefort	145
2. Pauillac to Bordeaux	40
3. Pauillac to District Commander, Rochefort	80
4. St. Trojan to District Commander, Rochefort	22
5. Fromentine to Nantes to Port Officer, St. Nazaire	95
6. Paimboeuf to Circuit No. 5	18
7. Le Croisic to Port Officer, St. Nazaire	24
8. Ile Tudy to Civil Central, Quimper	25
9. Guipavas to Army Central, Brest	8
10. L'Abervrach to Army Central, Brest	30
11. Brest Air Station to District Commander, Brest	4
12. Flag Office, Brest to Pt. Saint Mathieu	25
13. Flag Office, Brest to Pt. Espagnol	6
(This circuit necessitated the laying of one and a half miles of submarine cable)	
14. Brest to Lorient	105
15. Lorient to St. Nazaire	90

From a local service viewpoint, the naval establishments in all places were well served. In Brest all naval offices were well supplied with telephones from any one of which any other telephone, either Army or Navy, could be reached.

A small telephone private branch exchange was installed on the PROMETHEUS and the BRIDGEPORT. These ships were served by submarine cable.

At Le Verdon, there was communication through submarine cable to the French station-ship. There was, also, a cable connection for both telephone and telegraph to the MARIETTA stationed at Port Haliguen, Quiberon.

Facilities for handling the telegraph business of the Navy were particularly good on the west coast of France. The Navy had a direct duplexed telegraph connection to the London Navy Office—this line was a French lease routed to Havre.

The Navy leased from the French a telegraph circuit from Brest-Lorient-St. Nazaire. In addition, the Navy circuit of Brest-Lorient-St. Nazaire was simplex. Thus, we were provided with two telegraph circuits to these points.

The Navy, also, had the exclusive use of an Army circuit

from Nantes to St. Nazaire, and of an Army circuit from Nantes to Rochefort. From Rochefort there were both Army and Navy circuits to Bordeaux. All air station lines were simplex for telegraph, and this arrangement, together with the alternate route in many instances through French lines, gave us a complete, reliable and satisfactory telegraph system over the entire west coast of France.

When the armistice was signed, the work on all unfinished telephone construction to air stations was suspended. This prevented the completion of the circuit to Treguier, La Trinite, Gujan and Ile Tudy. The Ile Tudy circuit, however, was completed into the Civil Central at Quimper.

The system, therefore, was nearly finished as originally planned. The one missing link was the covering of the distance from Nantes to Rochefort. This span, however, was connected by the Army leased circuit which was available for the use of the Navy almost continually. There was, therefore, no appreciable lack in the naval communication systems throughout the west coast of France.

Chapter X

COMMUNICATION SYSTEMS—RADIO

The development of communication by radio definitely divides itself into certain periods.

I. JULY 14, 1917, to SEPTEMBER 15, 1917

Operations consisted in the so-called Area Patrol. Patrol vessels searched a certain area for submarines within that area. And they escorted vessels crossing that area until they were relieved by the patrol charged with the adjoining area. When the escort vessel had proceeded twenty miles beyond its prescribed area, the ship being escorted proceeded alone if the adjoining patrol were not met. If the cargo of the escorted vessel were of sufficient value, the escorting ship might continue to give protection.

Radio communication covered reports from the patrol vessels in regard to action with the enemy or in regard to sighting him, in regard to making contact with the merchantmen and in regard to escorting him, in regard to being relieved of the escort duty by the patrol of the adjoining patrol and in regard to the neighborhood of the twenty-mile limit being reached if the patrol of the adjoining area had not yet appeared. If a message of the last-named sort were received by higher authority, instructions to continue the escort were sent to the patrol if the value of the cargo of the escorted ship justified such action. If no such instructions were received by the patrol, it returned to station and the merchantman proceeded alone.

All radio communication was handled through the French system, that is, through radio stations at Kerlaer for the Brest traffic, at Penmane for Lorient, at Chemoulin for St. Nazaire, at Rochefort Arsenal for Rochefort, and at Le Bouscat for Bordeaux.

As our Headquarters were at Brest, the station there handled all communications for American ships. The station,

equipped with an obsolete type rotary spark, five kilowatt apparatus, was located on a high peninsula south of the Goulet entrance to Brest harbor. It was connected by direct telegraph and telephone lines to the French Central Communication Office. French Patrol Headquarters sent messages by messenger to American Headquarters across the street.

Communication was not only unsatisfactory but sometimes nearly impossible. The French operators were trained for the transmission of figures only. Letters could not be received correctly enough to be relied on. A communication between patrol headquarters and the station required at least two hours each way, usually two and a half to three hours. When messages were received at the station for transmission they were often so garbled that if correctly transmitted by radio they would be indecipherable. In the same way, even if messages were correctly received in the station, they were indecipherable when they reached the American Communication Office.

It took about five hours to transmit a message from a ship and to get an answer back, and then it was so garbled as to make compliance guesswork on the part of the commanding officer. Often when the cargo of a merchant ship under escort was sufficiently valuable to justify its escort vessel continuing with it, the merchantman proceeded alone because instructions sent to the patrol had not been received by it.

The apparatus in the station was contributory to this unsatisfactory conditions of affairs. It was underpowered, the spark being of such a nature that it was unreadable except under exceptional circumstances. Disregarding this point, it was recommended that American telegraph and radio operators be placed in French offices and stations.

II. SEPTEMBER 15, 1917, to OCTOBER 21, 1917

The convoy system was instituted. Instead of proceeding independently, merchantmen were formed into convoys, and the convoys were escorted by destroyers and patrol vessels. Troop transports were formed into groups escorted by destroyers from Queenstown. Outgoing troopships and cargo ships were sent in convoys of three to five ships, es-

corted by French or American Forces to eight and ten degrees west before being allowed to proceed independently. Radio communication covered reports from the Chief of Escort of the convoy in regard to the time of arrival at a designated offshore position, in regard to the number of ships in the convoy, and in regard to the name of the Chief of the Escort. Such reports would be answered by instructions to proceed to the designated landfall position where the convoy would be met by the patrol vessel and would be piloted into port.

There was no change in the system of handling messages, except that Patrol Headquarters were moved to the Flag Office in Brest, near the Central Communication Office. To this it was connected by direct wire manned by French operators. The delay caused by the former messenger service was eliminated—it became possible to determine the progress of communication by means of service messages to the station.

The time required for the receipt of a message from a ship and for notice that a ship had received a message was reduced from five to six hours to three to four hours. Better operators were placed on landwires so that approximately fifty percent of the messages received could be decoded correctly.

But many delays in repetitions and in original receipt caused convoys to miss contact with the pilot vessel or to lie off the coast in submarine-infested waters waiting for the instructions in regard to their landfall position. The code then in use for Inter-allied communications AFR in letters, was so ciphered that a mistake in the transmission or in the reception of one or two letters often prevented the decoding of the entire message. A request for repetition would be necessary in nearly every such instance.

The absolute necessity for the installation of American operators in French stations was pointed out to the staff of the Atlantic Fleet when the staff made a visit of inspection about September, 1917.

It was recommended that a receiving station be installed in our headquarters building. Permission was obtained from the French authorities to run antenna to high buildings near

the Flag Office. But installation was not considered necessary and was not undertaken. However, material was collected from ships having sufficient spares so that work could be begun immediately when authorized.

III. OCTOBER 21, 1917, to NOVEMBER 15, 1917

Operations continued to be of the same character as in the preceding period. The importance of Brest as a base increased because of the placing of the large ex-German ships in commission and because of the attachment of destroyers to our naval forces in France.

Preparations were made by the French to replace the radio station at Kerlaer by a more modern station at Mengam on the north shore of the Goulet entrance to Brest. The apparatus from Kerlaer was to be moved to Mengam, and a transmitter of twelve kilowatt power and more modern type was to be installed. This newly-chosen site, being on the same side of the harbor as Brest, it would permit of better telegraphic communication with the station—the former cable was frequently out of commission for hours at a time.

The French operators improved slightly in their ability to receive and transmit letter codes so that a large proportion of messages could be deciphered when received.

Orders were given for the installation of a receiving station at the Patrol Headquarters. This installation was made. The first message was received at six-thirty p. m. on October 22, 1917.

The antenna was about two hundred and fifty feet long, two wire, and stretched from the roof of the Credit Lyonnaise Building across an open garden to a lightning rod on the roof of the next building. The height was about one hundred and twenty feet from the ground.

The station apparatus was a Marconi type 106 receiver, at first. However, this proved unsatisfactory, and it was replaced by a Telefunken type E-5 received from the PANTHER. A detector stand type 155-A and one telephone head set were obtained from the KANAWHA II. Operators were transferred from the CAROLA IV which was at this time surveyed,

found unseaworthy and assigned as receiving ship at Brest.

The good effect of the establishment of this station was immediately shown in the improvement in radio communication. It is true, that, on account of the nature of the antenna, messages from a ship could be received only when the ship was not more than about twenty miles from the harbor entrance; nevertheless, the ability to hear the station on Kerlaer made it possible for headquarters to follow the course of any communication and to know when messages had been received. When interception of a message showed that it was being wrongly transmitted, corrections could often be sent by telegraph to the station without waiting the ship's request for correction. Further, many messages transmitted from points close in were copied direct with a consequent gain in time and in the accuracy of reception. From twenty-five to forty messages a day were intercepted with this installation.

The fact that the telegraph in the building and the radio were using a common ground caused some service interference. This was due, also, to there being a certain amount of induction in the antenna which was surrounded by a network of wires from the Brest telegraph office.

The immediate usefulness of the station showed that, when improved, the installation would go far toward bettering radio communication. The naval authorities having granted permission to stretch antenna to high points in the vicinity of the Flag Office, steps were taken to secure antenna wire and apparatus from different ships for the purpose of increasing the efficiency of the station.

IV. NOVEMBER 15, 1917, to MARCH 1, 1918

The nature of the operations continued to be the same as before; but the increase in the number of troops sent from the United States and the increase in the number of ships made accurate communications by radio an absolute necessity.

The construction of the new station at Mengam proceeded rapidly—the station was expected to be in operation by the first of January, 1918. Apparatus was gathered and on November 15, 1917, a large antenna was installed from the Flag Office to the tower of the Church of Saint Louis. The antenna

was single wire, eight hundred and fifty feet long, bearing 334° from station, led over slate and tin roofs, average height above ground about one hundred and thirty feet. The same receiving apparatus was maintained.

Improvement in reception was immediate and beyond expectations. The number of messages received increased from twenty to forty per day to one hundred to one hundred and ninety four per day. For three months during which careful records were kept of the number of messages, the average was one hundred per day.

Delay in the transmission from station to ship being eliminated, rapidity of radio communication increased fifty per cent. The problem of decoding messages was solved because with efficient receiving nearly all messages could be decoded directly. During this period, the best time for the reception of a message from a ship at sea and getting an acknowledgement from the ship that the answer had reached her was fifty four minutes. Of this time, thirty five minutes was required for transmission from the Flag Office to the station.

Permission was obtained for the installation of distant-control of the station at Mengam from the Flag Office, and the necessary material was requested from the United States. A similar station was installed at St. Nazaire for the naval port officer at that point—with good results.

The French Ministry of Marine approved the placing of American naval personnel in Mengam, Penmane, (Lorient), Chemoulin, Rochefort and Bordeaux. The understanding was that if American operators were permitted in these stations they would handle work for American ships only; all tuning of the receiver would be done by French operators; French operators were to be in charge of the stations at all times, and if necessary, they would take charge of the handling of any communication whether American or not. While these conditions were not satisfactory to us, yet any arrangement which would place skilled American personnel in the stations was considered a step in the right direction.

Operators arrived from the United States in November—they were assigned to the station at Le Bouscat on December 23, 1917, and to the station at Chemoulin about January 20,

1918. Operators were detailed for transfer to the station at Mengam when that station should be completed and quarters provided.

Need frequently arose on board merchantmen for broadcasting calls of distress and for broadcasting information in regard to the locations of submarines; yet, merchantmen often reached French ports with their radio in bad condition. The prime importance of radio for merchant shipping made necessary the establishment of facilities for radio repairs in the ports where supply-ships and troop transports were discharged.

Repair bases were established in Brest during the first week of November, 1917; in St. Nazaire about December 1, 1917; and in Bordeaux during the first part of January, 1918. These bases were placed in charge of a commissioned officer or a radio gunner who was given such personnel as was available. Material for even the simplest repairs was scarce; but each base was given a certain amount. Inspections of radio installations began immediately. Necessary stores were requested. In order that future needs might be met as they became evident, skilled personnel specially enrolled for radio repair work was asked for.

Permission was obtained for the assignment of naval telegraphers in the principal French telegraphic centers. A few telegraphers were found among the radio electricians, and these were immediately detailed to the Prefecture Maritime in Brest and to the Flag Office. The improvement in radio communication was immediate—the majority of the messages transmitted were correct and, contrary to what had often happened before, it became unnecessary to send repetitions to the receiving station before such repetitions had been asked for.

V. MARCH 1, 1918, to MAY 11, 1918

The systematizing of the convoys, the increase in the number of troops being sent overseas, and the increase in the number of ships based on the French coast, were the principal features of the operations of this period.

Radio communications covered reports from Chief of

Escort in regard to the time of contact with a convoy or group; reports in regard to action with enemy submarines or in regard to sighting them; despatches in regard to changes in the routing of convoys on account of submarine operations; reports in regard to the decrease in the number of escorting vessels on account of accident; information in regard to ships of cargo convoys not being present when contact was made and in regard to the circumstances of such ships leaving the convoy; reports from ocean escorts in regard to the time of arrival at designated positions.

During the first part of March, 1918, the French station at Mengam was completed and American operators were installed there. The French built satisfactory quarters for our men. A Chief Electrician, four watch standers, and a cook were assigned.

An improvement in operation was noticed immediately.

The efficiency of the radio in the Flag Office was increased by the addition of a two-wire antenna to the top of the Depeche Building. It bore 92 degrees, so that whatever directional effect was present could be utilized. It also bore directly away from the positions of the greatest amount of radio work and ran about four hundred and fifty feet long and one hundred and twenty feet high—above a large open park in the center of the town.

Additional continuous watch was established which covered six hundred meters with the main operator and copied all work carried on on four hundred and fifty meters, thus freeing main operators of coast convoy work and, in many cases, copying different messages on six hundred meters while main operators also copied on six hundred. This procedure was instituted because of the great importance of intercepted messages—positions of convoys were used by operations in routing outbound convoys.

A schedule was established so that ocean escorts at distances from the coast could transmit the times of their arrival at ocean rendezvous either by arc or spark apparatus.

The establishment of a four-place telegraph office in the Flag Office so increased the inductive effect that, although

the ranges five hundred to eight hundred miles—at which the work was done—required three amplifications on the receiving apparatus, yet the constant clatter in the receiving telephones made accurate receiving difficult and had a detrimental nervous effect on the operators. Intercepted work was almost as important as regular work for the station. Operations continually wanted more messages, there was constant watching for SOS signals—all these things kept the operators under a severe nervous strain.

This condition was alleviated as much as possible by the maintenance of an apartment for the radio operators near the Flag Office. There, while strictly under discipline in regard to liberty, appearance, and so forth—no exceptions being made in this direction, yet, they were free from the restrictions in regard to sleeping. The apartment was in charge of a radio gunner of long naval service and he was responsible for the actions of the operators while off watch.

Condensor, grounds and everything that could be thought of, were tried in order to eliminate the induction, but without success. Finally, with the view of ascertaining whether or not the induction was due to the effect of overhead wires in the town, the telegraph office was moved from the building and was established in the Army Headquarters building. There was an immediate improvement in accuracy of reception and in the general range of the work done.

Establishment of operating bases at Lorient and Rochefort decreased the necessity of having operators at Le Bouscat and Chemoulin; but it made vitally necessary the installation of efficient centers for the District Commanders in charge of the specified districts. With this in view, operators were placed in the stations at Rochefort and at Lorient. Receiving stations were installed in the offices of the District Commanders and negotiations were undertaken looking toward the installation of distant-control for these offices.

Some difficulty was experienced with our personnel because of the fact that the operators were men trained in United States radio-schools, without regard to their seagoing ability. As a result, from thirty per cent to forty per cent of them

were found to be unfitted for duty on account of seasickness. Thus, their operating capacity was not of a calibre to justify their being placed on regular radio watch on ships at sea. Each destroyer was assigned a complement of four operators, and each yacht a complement of three. Where space was to be had, an additional man or two for training was given. Therefore, when a new man was found unfit on account of seasickness, he was not allowed to resume radio duties until his seagoing ability had been thoroughly tried out. In many instances the men were put back on radio duty.

The apparatus for distant control of Mengam was not received as soon as it had been expected, so that by the time it came the radio repair base at Brest had five repair men, two of whom were experts. One of these was put on the work of transforming French 150-ohm sounders into relays, and the ordinary Morse keys were transformed to back-contact keys. Three 10-KW relays arrived from the United States. The diagrams for the installation were drawn, and the local wiring placed for each station. On May 11, 1918, the first message was transmitted from the Headquarters of the Commander, U. S. Naval Forces in France.

The French were naturally indisposed to consent to any arrangement which would prevent their operators from controlling transmission. So, although the signalling circuit was a closed circuit telegraph system, the transmission circuit was broken and a switch was placed in the radio office.

The radio repair bases grew with the forces. Men and material began to arrive, and bases were established in all the ports used by American storeships and trooperships. Such bases were in Havre, Lorient, La Pallice, Rochefort and Marseilles. A well defined policy was drawn up and published.

The Brest base, on account of the number of ships based on that port, became an installing center as well as a repair base. All bases were incorporated in the District Organization, all being under the District Radio Office, with a commissioned officer, a gunner, or a chief electrician in each base. Material was still scarce, but, although many points were undermanned, its paucity had not delayed the operation of any base.

VI. MAY 11, 1918, to CESSATION OF HOSTILITIES

Operations continued to be of the same nature as before. Some changes were made as the convoy system was perfected, but radio communication remained substantially the same.

The beginning of distant-control of Mengam was followed by an immediate improvement in radio communication that originated with the Commander, U. S. Naval Forces in France. The time from the receipt of a message to the acknowledgment of the answer was determined only by the time required to decode, code, and get the action from the proper authority. Usually, it took fifteen minutes to thirty minutes.

In order to eliminate the immense amount of interference on 600 meters, a working tune of 952 meters was established and was used by destroyers basing on Brest. The work of the Brest Flag station was crippled by the continual induction from the telegraph instruments, until September, when the telegraph station was permanently transferred to the Army office. The increased space acquired made it possible to move the radio apparatus into a larger room where it was properly and permanently installed.

Communication was established with the Azores. This could be carried on only at night but it was useful for receiving reports from ships at sea beyond the ordinary range of the coast stations.

Distant control was installed for the District Commanders with the Penmane radio station, Lorient, and with the station at Rochefort. These two installations were entirely satisfactory, and viewed from every point, there was general improvement in communication by radio.

Schools were opened in Rochefort and in Brest. There, operators from the United States and new material selected from the ships were given intensive training.

Men trained in high power work arrived. They were sent to the French transmitting stations for trans-Atlantic work at Lyons and at the receiving centers at Palaiseau, Place de Rousillon, and Orleans. In October, 1918, they were all transferred to Poitiers to man the main French receiving station there. When hostilities ceased, we had four sets of

men there being trained for the operation of the Lafayette station when it should be completed.

Material and personnel continued to arrive for the repair bases. A new base was established at Cherbourg. The increase of the force at Brest to two gunners and seventeen men was made necessary by the receipt of radio-compasses and radio-telephones for ships.

Telephones were installed as rapidly as possible. When most of them were ready on the destroyers as well as in the Flag radio station and at the base headquarters, the greater part of the visual signs were transmitted by this medium, with good results. It was found that it did not interfere greatly with radio telegraphic communication on other wave lengths than 600 meters.

Chapter XI

SALVAGE OPERATIONS

At a meeting of the Salvage Committee of the Allied Naval Council early in 1918, it was agreed that the United States would furnish five salvage vessels as that country's contribution toward the salvaging of ships sunk by torpedoes or otherwise damaged in European waters. The vessels were to be sent to French, British and Italian waters.

Owing to the lack of suitable bottoms, this program had not been completed at the time of the armistice.

The first of the American salvage vessels to become available was the FAVORITE, originally designed and built for salvaging bulk cargo on the Great Lakes. She reached Brest on August 5, 1918.

The FAVORITE not only brought her own salvage gear, but she carried, also, such apparatus as could, at that time, be obtained in the United States for the other vessels that were to be sent over for salvaging uses. An old French hulk, the ROMAGNOL, was obtained in order to care for the extra material brought by the FAVORITE. The ROMAGNOL was anchored in the harbor of Brest and was fitted as a store-ship and barracks for the FAVORITE.

The FAVORITE was at once employed in salvage work, and was kept continually busy. So great was the amount of work for her in the harbor of Brest and its vicinity, that she was prevented from moving to other places.

In reply to urgent cables the Navy Department stated that two additional salvage vessels might be expected in January, 1919, and two more in March, 1919.

After the signing of the armistice, besides the FAVORITE and the ROMAGNOL, the salvage section was operating the U. S. S. UTOWANA. This ship was altered to fit her for use as an auxiliary salvage vessel. These alterations included the equipping of the vessel for towing, the re-arrange-

ment of her berthing space and holds, so that pumps and diving gear might be stowed, and the fitting of hoisting apparatus.

A small steam lighter, also, was altered in a minor way so that she could carry a few small pumps and a complete diving equipment, with air compressors and so forth.

A list is given of the major salvage operations successfully conducted by the FAVORITE.

S. S. WESTWARD HO. Torpedoed No. 1 hold, 6" pumps in chain locker, fore peak and No. 2 hold prevented the vessel from sinking. Vessel kept afloat until sufficient cargo was discharged from No. 2 hold to give safe freeboard. Bulkhead shored as cargo was removed. FAVORITE did heavy hoisting of the deck load.

U. S. S. WEST BRIDGE. Torpedoed twice. Pumps in No. 1 hold where there were 12 feet of water. Pumped down until vessel had safe freeboard. Cargo removed, bulkheads shored and wooden cofferdam placed over damage, about 90 feet long.

U. S. S. MOUNT VERNON. Installation of 6" pumps as precautionary measure, wrecking section in charge of pumping double bottoms, etc., which, together with other measures taken, removed free water from deck, increased freeboard about 24" and brought vessel to upright position ready for docking.

S. S. CELEBES. Vessel on fire. Burnt hold with oxyacetylene to flood No. 2 hold. Installed pump to flood hold and 6" salvage pump to pump out engine room. Fire extinguished. Vessel pumped out, portions of cargo removed. Heavy hoisting by FAVORITE.

Other important jobs were done on the steamer AU-SABLE, the steamer NIJINI-NOVGOROD, the tug SAN LUIS, the steamer LAKE DAMITA, the steamer RERESBY, the torpedo-boat destroyer CONNER and the steamer SUSANNE ET MARIE.

A number of launches and small water craft were rescued and salvage gear was lent the French for a wrecking job at Havre.

The principal duty of the salvage section was to prevent

sinkings. The secondary duty was to raise vessels already sunk or to salvage their cargoes.

The energy and ability of the officers and men charged with this work was notable.

The work primarily was under the direction of the Force Constructor, Naval Constructor C. W. Fisher, Assistant Naval Constructor W. W. Woother spoon, U.S.N.R.F., an officer of wide experience in salvage work in civil life who volunteered for service during the war, Lieutenant S. Dananhower, U.S.N.R.F., a graduate of the Naval Academy who had left the service to engage in salvage work in civil life, and Lieutenant (jg) H. E. Snow, U.S.N.R.F., also an officer of wide salvage experience in civil life.

They undertook any and all work most cheerfully. Frequently, they had to leave an un-completed job to undertake emergency work of a more important nature. During a long period of time they laughingly said they counted on and averaged a new piece of work every six days.

Chapter XII

HOSPITAL ACTIVITIES

Hospital facilities in France developed along two distinct lines. First, provision had to be made for handling the sick and wounded that might be received from the ships basing on the French coast and from the transports arriving from America. Second, the sick from the aviation stations must be cared for.

At an early date it was decided to establish a series of naval bases on the French coast, each of these had to be equipped with facilities for the handling of the sick and the wounded. The first dispensary and sick-bay to be established was at Brest.

Lieutenant-Commander H. A. Garrison, Medical Corps, U. S. Navy, arrived in June, 1917, and secured the use of a part of a Roman Catholic school which had formerly been employed as French Convalescent Hospital Number Nine. In this, he established a small hospital. It developed to such an extent that by October 1, 1917, it was prepared to handle fifty or sixty patients.

On October 5, United States Navy Base Hospital Number Five reached France. It was soon transferred from the port of debarkation to Brest, and on November 10th moved into a building since used as the hospital. This building had been constructed as a Carmelite convent and had been occupied as such for many years. Upon the separation of Church and State in 1905, the building had been sold and had stood ten years vacant. Soon after the war began the French military authorities took it for use as a convalescent hospital, and it was being so employed when turned over to us.

Although, by no means suited for the purpose, it was the only building available at Brest at that time. Accordingly, it was accepted for hospital purposes.

Satisfactory medical and surgical treatment was given the

patients from the first, but it took several months of hard work to develop the hospital itself to a satisfactory condition. Plumbing had to be put in, the building had to be painted and numerous repairs had to be made and a great many things altered.

In the early days of its work, the number of patients under treatment in this hospital was about one hundred. This number steadily increased until, on occasions there were more than six hundred patients there. Satisfactory laboratory, eye and ear, and X-ray departments were developed. Equipment of the operating rooms was increased. Finally, the hospital could accommodate seven hundred patients and was equipped for all standard work. The greatest difficulty experienced was in obtaining materials for construction and repair work.

The commissioned personnel which manned this hospital was one of exceptional ability and was composed of a group of Philadelphia surgeons and doctors under the command of Medical Director H. C. Curl, U.S.N.

The unit was organized by Surgeon R. F. LeConte, U.S.N.R.F., a surgeon of international reputation. Among those who formed the unit and who served continuously at the hospital or as operating teams at the front, following the great enemy and Allied drive of 1918, may be mentioned Surgeon J. E. Talley, U.S.N.R.F., Passed-Assistant Surgeons H. C. Cleaver, U.S.N.R.F., P. M. Kerr, U.S.N.R.F., B. B. V. Lyon, U.S.N.R.F., G. G. Ross, U.S.N.R.F., J. L. Herman, U.S.N.R.F., and Dental Surgeon G. D. B. Darby, U.S.N.R.F. Surgeon R. D. Jones, U.S.N.R.F., went from this hospital to command our hospital at Lorient.

The preliminary work of organizing our hospital facilities was done by Surgeon H. A. Garrison, U.S.N., who afterwards served as Executive Officer of the hospital, and later, went to command the hospital at Pauillac.

The work of the above officers, many of whom were above the usual age of military service, was not only a most efficient but a most devoted, cheerful and self-sacrificing one.

A naval hospital became necessary at Lorient on account of the number of patrol vessels and mine-sweepers basing at

that point. On August 26, 1918, a large residence was secured in the suburbs of Lorient and converted into a hospital. This was completely equipped for all ordinary work, and could care for one hundred and fifty patients.

A naval hospital at Pauillac was the outcome of the increased needs of that station and of the district surrounding it. Pauillac was the largest of the naval aid stations in France—from the first it was obliged to handle a large number of sick from the adjacent stations.

Through the Red Cross, a chateau about four miles from Pauillac was secured for use as a hospital. On account of the distance of this chateau from the station, of the inconvenience in handling the patients, and of the emergency work to be done where so much construction was underway, it was found advisable to establish a hospital at the station itself.

The first development was made by obtaining several barracks and remodeling them for hospital purposes. But during September, 1918, it became evident that, if hostilities continued, a still more satisfactory arrangement would be needed. Therefore, two large stone barracks in the immediate vicinity of the station were turned over to the medical department and their fitting out as a hospital was immediately begun.

These buildings became equipped to handle two hundred and fifty patients and were practically complete in every way. A satisfactory, although small, X-ray outfit was supplied; the surgical equipment was completed, and the hospital was put in good condition. There were fourteen doctors on the medical and surgical staff and forty six hospital corpsmen on duty there.

Each of the fifteen aviation stations, including stations as well as patrol plane stations, was furnished with a small but complete medical and surgical outfit.

At each station, a suitable building from seventy five to one hundred and fourteen feet long, depending upon the size of the station, was set aside for hospital purposes. These buildings were sub-divided into examination rooms, operating rooms, laboratories, storerooms and small wards.

At some stations a second building was taken over. Dur-

ing the severe epidemic of influenza in the early fall of 1918, additional barracks were used as wards, the occupants of the barracks being moved out. This procedure proved entirely satisfactory—no further ward-construction was found necessary at these stations.

On account of the activities of the port officers at St. Nazaire, Rochefort, Bordeaux and Nantes, it became imperative that the scope of the dispensary services at St. Nazaire and Bordeaux should be considerably increased. A "dispensary hospital" capable of handling seventy five patients was completed at St. Nazaire. A complete small hospital was in commission at Bassins in the immediate vicinity of Bordeaux. This cared for the sick and wounded from the ships, including transports, arriving at Bordeaux.

It was often necessary to utilize the nearest Army hospital in providing special treatment not possible to be given at our smaller stations. The medical officers of the Army were always very courteous and took our patients for treatment whenever we made a request.

Chapter XIII

THE CAROLA BARRACKS AT BREST

A receiving barracks on the French coast became desirable and necessary early in the war, but it was not until the autumn of 1917 that plans were actually made for such an establishment. The French offered a part of the Chateau, one of the oldest fortifications in Brittany for our use, and it soon became known as the Carola Barracks. The name arose from the fact that the yacht CAROLA moored near the fort was used as an auxiliary, although the headquarters of the organization was on shore.

The buildings turned over to us had several drawbacks; a galley without cooking facilities; windows and floors in poor condition; no berthing utilities whatever; no sewer system and very little water.

At this time, it was necessary to carry water a quarter of a mile. A pipe-line was immediately laid between the CAROLA and the Chateau, and the pumps on the ship were employed to pump salt water for cleaning and flushing. On account of the fort being so high above the CAROLA, another pump was found necessary and was duly installed.

With fifty men from the ships basing on Brest, a part of the place was cleaned. A range was borrowed from the hospital and installed. On February 8, 1918, the Carola Barracks was commissioned.

For a few days the working force slept on the floor—now cleaned. It was decided to install standard berths, three feet high. No berths were to be had; but old boiler-tubes were searched out in the navy yard, and by cutting these to proper lengths and welding a clip on the side, a good stanchion was made. Smaller tubes were found for side bars, and hammocks were used for bottoms.

As material was obtained, the berthing facilities were gradually increased. Later, standard bunks were procured

from the transports and the Army, until twenty-three hundred men could be housed comfortably. Messing accommodations for five thousand men could be arranged, also.

The sewerage problem was solved by installing a modern sewer to the sea. Men awaiting transfer did the work. Sanitary toilets were put in—the CAROLA pump supplied the sea-water for flushing.

As material became available, almost the entire Chateau was re-wired. The buildings were repaired and repainted and a system of inspections arranged in order that living conditions might be kept sanitary. Clothes lockers for the men could not be had, but mine-cases cut to correct sizes made good lockers. Heating was provided by means of small stoves—these were purchased when possible or borrowed from the Army, Red Cross or the Y. M. C. A.

The fresh water conditions were difficult at first. The natural pressure not being sufficient, to force water up the hill, the difficulty was finally overcome by connecting to the small Army main that ran to the Port du Commerce and installing a steam-launch boiler and pump. We did not receive a drop of water from the city in months—nevertheless, we had plenty and naval personnel was supplied to operate fresh water pumps on the Penfield River line of the Army.

Amusement features were given consideration. An old stable was turned into a combination moving-picture theatre, church and mess-hall. Here we had moving pictures every night. Divine services were held on Sunday.

The matter of liberty for the enlisted men presented problems at first; but we made an "open gangway" after working hours—few men violated this privilege. Cleanliness was encouraged by the provision of shower baths—a wash house with an abundance of hot and cold water for scrubbing clothes, and a steam-heated drying room adequate for all needs.

THE MEDICAL DEPARTMENT

When the Carola Barracks was placed in commission a medical department was organized and given the use of four

rooms. In addition to carrying out its duties at the Chateau, this department made daily inspections of the base, of the French prison, and of various merchant ships in the Navy Yard. It met the survivors of torpedoed vessels and gave them necessary aid. It cared for officers and men of the Navy on subsistence in Brest.

The first obstacle that confronted the Medical Department was the lack of medical supplies at the base. The American Red Cross gave willing assistance in this matter. Besides the help received from the Red Cross, the medical officer and the members of the Hospital Corps obtained enough supplies from various ships and transports to meet the actual requirements until the necessary material arrived from the United States.

In July, 1918, the influenza epidemic attacked the personnel of the Chateau. But by the efforts of the Medical Corps, aided by the careful maintenance of sanitary conditions throughout the barracks, the danger was averted without any serious cases developing.

Later, a dental officer was attached, and a greatly needed dental office was put into operation.

From the time the barracks was placed in commission to December, 1918, the Medical Corps staff increased from one officer to three officers; from one hospital corpsman to ten men, and from treating ten men each day to treating about one hundred and seventy-five.

SUPPLY DEPARTMENT

When the barracks was organized, the Supply Department representatives included one warrant officer and two enlisted men. This force was increased by December, 1918, to two commissioned officers, two warrant officers and twelve enlisted men. On the first pay day, March 5, 1918, the payroll had three hundred accounts—in December, 1918, it carried over seven thousand accounts.

SURVIVORS

For many months, the handling of survivors from torpedoed or wrecked ships formed an important part of the

work. The largest number handled in any one month was during July, when more than eight hundred men were received as survivors, were outfitted and cared for.

They always reached us exhausted from exposure, lack of sleep or insufficient food. Very few had on a proper amount of clothing.. Experience soon taught us that the condition of survivors upon their arrival called for three things immediately: outfit of clothing, a bath, a warm bed. Without exception, these things were supplied whenever the occasion arose, and the men were well cared for.

LAND TRANSPORTATION

Land transportation at the base was handled by trucks and personnel from the Carola Barracks. This work covered the carrying of large drafts of men, working parties, baggage of all officers passing through Brest, and of all naval supplies. For many months only four trucks were available for this purpose; as a consequence conditions were uncertain and trying when a problem of transportation was to be undertaken. In time, however, nineteen trucks were used on this work.

THE BEACHMASTER'S OFFICE

At first, the handling of small boats attached to the base was undertaken by the patrol officer. But on January 20, 1918, this work became a separate department.

At that time the beachmaster's equipment consisted of desk room in the patrol office, the yacht CAROLA with accommodations for fifty-two enlisted men and two officers, and five broken-down boats. Four of these boats were originally pleasure craft and were unable to stand the work demanded of them. The personnel included one man in the office and thirty-six men in boats and on the CAROLA. The duty performed comprised eight to thirteen trips per day carrying special letters, and transporting heads of departments.

The office grew rapidly notwithstanding the fact that considerable difficulty was experienced in getting proper boats, spare parts of machinery and general supplies.

In time, the beachmaster had an office of his own. He had a baggage and waiting room, telephone exchange, thirty boats, his own repair force, carpenter shop, blacksmith shop, battery-charging station, gasoline and oil station and paint shop. The capacity of the CAROLA increased until it subsisted one hundred and eight-five men and berthed one hundred and forty-seven.

The beachmaster handled the entire water-traffic of the base, of the Flag Office and their various departments. This included the air stations, liberty parties for all troopships, destroyers and yachts, and visiting ships of all nationalities, supplies, baggage, drafts, mail, mines, ammunition—in fact, everything connected with naval affairs. When transports were in port two or three thousand liberty men were carried, and trips of other kinds ran from seventy to eighty a day. The records show an average of four hundred special letters delivered per month. On busy days three hundred landings were made by American boats.

PATROL COMPANY

The development of the Base Patrol Force was begun in the fall of 1917. An organization was needed to maintain order and discipline among the naval personnel on shore in Brest and to see that, as far as possible, the enlisted men were protected from the lawless and vicious influences to be found in the town.

At first, there were only eight permanent patrols at the base. These were given the general supervision of the ship patrols sent by the ships for patrol duty ashore. But, finally, ship patrols were dispensed with entirely and the personnel of the permanent patrol force was augmented to handle all the work of that sort. The base patrol force grew until it included five commissioned officers, fourteen chief petty officers and two hundred and fifty men of inferior ratings.

Originally, the duty of the company was only to patrol the city and to prevent naval personnel from entering restricted houses and districts. But as the base expanded the work of the patrol expanded with it. Guards for stores were supplied;

railroad stations were patrolled. Orderlies, telephone operators, traffic policemen, sentries for the navy yard, men for liberty tugs and investigators for duties of a special nature, were furnished.

The men were given special training both in matters required for their ratings and in their duties as patrolmen. The base patrol force was always noted for its smart appearance and for its careful performance of duty.

From the time of its organization to December, 1918, the force handled approximately half a million men on liberty. It made three thousand five hundred arrests, on charges ranging from trivial offenses to the most serious crimes. It consigned, that is, closed to American sailors, more than a hundred disorderly houses and districts. It investigated approximately four hundred complaints made by the French. It looked after twenty five thousand men leaving or arriving at the railroad station. It found rooms and apartments for fourteen hundred officers. It guarded millions of dollars worth of stores belonging to the Navy, with practically no loss, whether by accident or theft.

A report made to the Commander, U. S. Naval Forces in France, on December 1, 1918, for the preceeding month, gives an indication of the growth of the general work.

"Total number of men received, which includes men received from all sources and for general distribution in Europe: 2,855.

Total number of men transferred to the United States and to the general European stations: 2,269."

The fitting of the Chateau as a Barracks, its organization as such, and its later administration, are a tribute to its Commanding Officer, Lieutenant J. D. Pennington, U. S. Navy; himself, a former enlisted man of the Navy, whose initiative, energy and tact were of the highest quality.

There was no portion of our command of which we had more just cause to be proud than of our shore patrol. They were composed of a specially selected body of men, selected for efficiency and faithfulness and, incidentally, for appearance

and physique. To see this splendidly set up body of blue-jackets patrolling the streets or parading, headed by their band, was an inspiration to a belief in the highest meaning of the word "American".

They enforced discipline gently and tactfully as long as possible, but when a showdown came there was no trifling with them. While they worked in harmony with the Army patrol, yet, the handling of all Naval liberty men ashore was done by them and not by the Army patrols, and on this we were insistent.

The amusement facilities came under the barracks and chief among them were the Naval Band and Orchestra, which gave daily concerts, played twice a week in the Public Square in the center of the city, for all entertainments and dances and at the hospitals, French and American.

Never was there a band which seemed to enjoy playing more. They always paraded from the barracks to the place where they were to play and were always followed by a crowd of children who were much impressed not only by the band but by the drum-major who led it, a fine upstanding type of young American sailor.

The orchestra composed of professional musicians had been organized during the war and after playing on tours in America came to us for duty. The pleasure and relaxation from strains that they gave all hands was not the slightest of the tasks performed by our forces.

In addition, around a nucleus of seven professional actors, we built a combined minstrel and vaudeville show which finally showed in Paris and was said to have given the best service show seen there during the war or following the signing of the Armistice.

Hand in hand with these activities worked the Y. M. C. A. and the Knights of Columbus, both of whom maintained reading rooms, gave dances, movie shows and entertainments, and organized tours about the country for the men. Under the Y. M. C. A. was organized a real Navy Hut, in addition to the one maintained for the combined services. Our relations with them all were most harmonious.

Among the women who were with the Y. M. C. A. and who, by their unfailing kindness and thoughtfulness, did so much for us, may be mentioned Mrs. Vincent Astor, Mrs. Pleasants Pennington and Miss Harriman of New York, Miss McKim, of Philadelphia and Miss Blair of Chicago, also the nurses and telephone girls who afforded an example of the highest type of self-reliant young American womanhood.

Chapter XIV

THE WATER AND FUEL-OIL SUPPLY
AT BREST

THE WATER SUPPLY

From the time of the arrival of the American naval forces in France—July 1917—the water situation in Brest was very serious. There are three systems in Brest: the city supply which comes from wells in the neighborhood and is pumped through the city mains; the French naval supply which comes from a point about three miles up the Penfield River and on the west side of that stream, and another small supply at Quatre Pomps which furnishes drinking water.

The Commander, U. S. Naval Forces in France arranged with the French authorities that they should bring water for our use from Trinity and Laneville to Quatre Pomps. This work was begun early in the spring of 1918, the French undertaking to complete it by June 15, 1918.

Pipe for this project was ordered from England by our naval authorities, but it was never delivered—the pipe was furnished by the French.

The French had only a few men at work and the task progressed very slowly. They were persuaded to allow our Army to put about eight hundred men on the job. American engineers, therefore, started work about July 14, 1918, and finished the whole system by September 18th. The flow of water developed was not so great as had been expected, being only about one thousand tons a day.

Another project begun by the Army was one with pumps at the head of the Penfield River connected with a small reservoir. An eight-inch pipe connected this system with the French mains on the east side of the Penfield. The Army laid a four-inch main from the Arsenal through the railroad tunnel to the Port of Commerce, with four-inch branches to the different piers used by our vessels.

This was finished in May, 1918. At first, it was possible to get a fair pressure, but, although the Penfield pumps were delivering three thousand tons of water a day, we were able to get only from two hundred to three hundred tons a day at the Port of Commerce. Apparently, the French were using nearly all the water before it reached the Port of Commerce, and the pressure was very bad the greater part of the time.

When the armistice was signed the Army was constructing a dam and reservoir at Penfield, designed to hold about 23,000,000 gallons of water. Large pumps were to be installed and the water was to be sent through a fourteen-inch main to another reservoir of about 2,000,000 gallons capacity located near Lambezellec. From the latter reservoir a twelve-inch main was to be laid direct to the Port of Commerce, with six-inch mains on all the docks used by American vessels. Instead of sending the three thousand tons a day through the French arsenal, the proposed new pipes would bring it directly to the Port of Commerce, thus supplying all the water necessary for our vessels.

Proper connections with large manifolds were placed on Pier No. 1. Water barges and tugs lay at this pier, and it was used as the principal watering station.

The new pipe line was to be completed to the Port of Commerce by January 15, 1919.

The officer in charge of this work was Lieutenant Commander R. E. Tod, U.S.N.R.F., who, after serving some time as Navigator of the U. S. S. CORSAIR, had taken over this work. His energy and ability as well as the ripe experience which he brought from a successful business career, together with his great tact in dealing with the French, made his services invaluable.

In addition to his efficient performance of duty, the many acts of kindness and generosity performed, always most unostentatiously, will not soon be forgotten by those who served with him nor by the French with whom he was associated.

THE FUEL-OIL SUPPLY

In order to base oil-burning destroyers on the coast of

France, the lack of an adequate fuel-oil supply had to be remedied. At the beginning of our operations this was one of the great difficulties we had to overcome.

It was clear that this lack of fuel-oil supply would be felt still more keenly as the war went on. A number of the troop-ships burned oil. Then, too, when cargo shipments to France increased, a number of oil-burning cargo-ships began to arrive. Many of these vessels did not carry enough fuel for the round trip.

At first, there was a tank capacity of 6,800 tons of oil on the west coast of France. This meant that the fuel-oil reserve was very small, and, as the demands of the Grand Fleet and of the British destroyers were even greater than our own, it meant that oil tank-ships were driven to their limit. The loss of one of the tank-ships—if one should be assigned to us—might prove a serious matter. The fuel-oil capacity of the destroyers ran from about 200 to 275 tons. Ordinarily they would require at least two-thirds of the amount once a week on account of their rate of consumption while on escort duty.

There would have been such a delay in obtaining material in France for the erection of fuel-oil tanks, and the difficulties would have been so great, that this procedure was considered impracticable. The Navy Department was requested, therefore, to ship to France plates already cut and punched and ready to put up. The easiest way to obtain the necessary material was to break down tanks in the United States and to ship them to France ready for assembling.

Although the concrete foundations of the tanks were laid by contract, the work of assembling and installing the tanks themselves after their arrival, was done by our own enlisted personnel, another example of their being able to undertake and bring to a successful conclusion any job which came their way.

This plan was followed. At the time of the signing of the armistice there was a tank capacity of 28,568 tons at Brest, and tanks capable of holding 10,000 tons were under construction at Lorient, La Pallice and on the Gironde River.

Barracks were constructed to accommodate over one hundred men. A hospital, with operating room was built—this could care for about seventy five patients. A medical liaison officer cooperated with the Army in supervising the handling and returning to the United States of Army sick and wounded.

It was at this port that, from June to August, 1918, the United States Naval Battery detachment unloaded and erected the five units of fourteen-inch naval guns which later did such effective work at the front.

During the time this port office was in operation, it looked after the requirements of the constantly increasing numbers of naval ships engaged in cargo and troop transportation. In August, September and October, 1918, approximately thirty ships per month entered St. Nazaire. The cargo carried by these naval ships combined with that carried by ships under Army charter, brought about 250,000 tons of material into port each month.

	September	October	November
Number of ships released by A. T. S.	47	58	67
Cargo discharged (tons)	185,551	227,628	191,419
Cargo loaded (tons)	2,755	1,457	4,864
Troops and passengers loaded	10,290	24,390	8,571
Troops and passengers returned	35	1,198	3,477

LA PALLICE

The Naval Port Office at La Pallice was established in February, 1918. The original personnel consisted of one Ensign of the Reserve Force as port officer, one yeoman, one seaman and one coxswain. The original quarters was one small room in the corner of a warehouse, the room supplied by the French authorities free of charge.

The port office was operated on this scale for several months—until the American shipping at the port justified a much larger organization.

By July, 1918, the personnel was increased to seven officers and forty-six men. A new building was constructed—

by the enlisted personnel—in a good location near the entrance to the docks. This building gave accommodations for the port officer and his assistant, for the supply officer; the medical officer, the communication officer, the radio repair officer and the officer in charge of mines and ordnance.

GENERAL CONDITIONS PREVAILING

There were four berths for United States vessels at La Pallice. Vessels of fourteen or fifteen foot draft could be discharged at La Rochelle and Marans, and numerous cross-Channel ships were handled at those two ports. For the most part, their cargo was coal.

Only cargo vessels were discharged at La Pallice, and their cargo was general, consigned to the Army. When vessels arrived, they were visited at their anchorage in the roads by an officer representing the naval port officer. The port regulations and instructions were delivered to the commanding officer of the ship and general information was obtained from him. The following data was secured from each vessel: the nature of the cargo; the port of departure; the home port; the number of the crew; the naval personnel on board; the kind and amount of fuel; maintained sea speed and consumption of fuel per day; port consumption per day; maximum sustained speed; the urgent repairs and supplies needed and the list of confidential papers.

The commanding officer of the ship was directed to report at the port office in person within twenty-four hours. The Army quartermaster was sent ashore with the manifest to the Superintendent of the Army Transport Service and the port officer was then informed in regard to the probable date of entry into the basin.

The following figures show the increase in the amount of tonnage discharged during the five months: July, 1918, 60,196; August, 58,698; September, 60,644; October, 78,200; November, 82,185.

BALLAST

Vessels in need of ballast were directed to send in a request for the amount desired. A board of investigation would

then be appointed to determine the amount actually necessary to insure the safe return passage of the ship. A representative of the port officer and two commanding officers of ships—not including the commander of the ship concerned—made up the board.

A request was made upon the Army authorities for the amount of ballast that the report of the board showed to be necessary. The ballast would be either rock or iron pyrites and would be placed on board ship by the Army. Iron pyrites were chiefly used, and it is interesting to know that this material cost seven francs a ton in France but had a market value of two dollars and seventy five cents a ton in the United States. Efforts were made to put the ballast on board as fast as possible and vessels were seldom delayed on this account.

REPAIRS

The only repairs that were made, were those that were absolutely necessary to enable a vessel to make the return voyage. In making repairs, close cooperation was maintained with the marine superintendent of the Army Transportation Service with very good results.

The machine shops on United States vessels and on United States Army Chartered Transport vessels were used as much as possible. For some more extensive repairs French contractors were employed. Repairs were handled most efficiently at this port.

Several vessels of the destroyer force were dry-docked here and in such instances the port officer made all the arrangements. Close co-operation with the French authorities facilitated matters of this sort.

Several Shipping Board vessels visited here and the port office co-operated with the American consul in regard to repairs for such ships.

TRANSPORTATION

The work of the port office was somewhat hampered because of the lack of transportation facilities. The kind in-

dulgence of the French prevented any serious delays in communication or transportation.

The office never had a suitable boat for communicating with ships in the Rade.

Convoys were under the control of the French and were escorted by French and American patrols. Usually the convoys reached La Pallice roads between seven o'clock and nine o'clock in the evening and departed for the north and south the following morning between four o'clock and seven o'clock. There was difficulty in communicating with these ships and, although the French assisted greatly, their boats were in bad repair and it was often difficult to obtain one.

Vessels of the coastal convoy often brought stores from Brest to be unloaded and trans-shipped to vessels in the Gironde. This necessitated the hiring of tugs from the French. French tugs had to be hired, also, to go to the assistance of ships in distress.

It may be noted that the only storage space available at this place was lent by the French—the French magazines for mines for example—or lent by the naval aviation station. Some stores were kept in the American Red Cross building for a while.

The greater part of the time, there were two automobiles at hand. These were in constant use for carrying the commanding officer and the officers attached to the station from La Pallice to La Rochelle, a distance of four kilometers. These trips were made in order to comply with the French instructions to report to the Commandant de la Marine at Rochelle; to communicate with the American consulate, and to acquire prompt information in regard to vessels discharging at La Rochelle and Marans, the latter being twenty one kilometers distant.

It was frequently necessary for the port officer to visit the District Commander's office at Rochefort in regard to courts and boards and to confer on various matters. Officers bearing confidential communications had to be sent to Rochefort by automobile, these communications being forwarded from Brest by way of La Pallice.

COMMUNICATIONS

A signal station was established in the lighthouse on the north breakwater, and a direct telephone connection with the port office was made. This station was much utilized by the French and American naval authorities.

In the absence of a call-boat it was necessary greatly to depend on this signal station, and because of the fact that vessels going north or south in the coastal convoy stopped at La Pallice and had to be reported to Rochefort and Brest, a constant and vigilant watch was imperative.

For some time the telegraph communications from and to the port office were handled over the French landwire. The reports of all movements of ships up and down the coast were relayed from this office and comparative success was attained. Later the Army wire was used—all communications were then forwarded by way of the Army Signal Corps. Good telephone communication was possible at all times. This method of communicating was largely employed with Rochefort, while Rochefort was the District Base, for all matters other than those relating to the movements of ships.

Close co-operation always existed between the port office, the naval aviation forces, the Army and the French authorities.

ROCHEFORT

The Rochefort District was established on January 6, 1918, with the arrival of Rear Admiral N. A. McCully on board the U. S. S. *May*. Rochefort was selected as district headquarters because it was already headquarters for the French Vice-Admiral, Prefecture Maritime of the Fourth Arrondissement.

Patrol vessels for escort duty reported in the district; the *CORSAIR* on February 13, 1918; the *APHRODITE* on February 16, 1918; the *NOMA* on March 14; the *WAKIVA* on January 23; the *NOKOMIS* on March 11; the *GYPSUM* *QUEEN* on July 11; the *PANTHER* on August 16 and the *MARIETTA* on September 1, 1918.

The duties of the District Commander were to establish

a close liaison with the French, to administer all port offices, to re-inforce the escort for the Outward-from Verdon and Homeward-to-Bay-of-Biscay convoys, to provide pilot ships for troop transports and to do any other duty that might be required. A liaison officer was stationed on board the MARTHE SOLANGE—his duties were to co-operate with the French in making up convoys and in reporting American ships.

A port office had been established in Bordeaux in July, 1917. Immediately after the organization of the Rochefort district, port offices were established at La Pallice and Royan. Later, offices were set up at Rochefort, Sables d'Olonne, Pauillac and St. Jean de Luz.

The organization was so arranged that it could be expanded as the volume of business increased. When the armistice was declared, the organization had reached its highest efficiency.

COMMUNICATIONS

All port officers were in direct communication by telephone and telegraph with the District Commander. The District Commander was in direct communication by telegraph with Nantes and Brest.

A telephone between Brest and Rochefort was entirely satisfactory. A complete circuit was made from Rochefort via Royan, Le Verdon, Pauillac, and Bordeaux back to Rochefort. Direct telephone lines were constructed by the Navy: two lines from Rochefort to Royan, two cables under the Gironde to Le Verdon; two lines from Le Verdon to Pauillac and one line from Pauillac to Rochefort. Thus Rochefort was placed in direct communication with all offices north and south of the Gironde. Direct lines were leased by the Army from Rochefort to La Pallice.

The first cable laid under the Gironde was a four-conductor, light cable. Later, a double, heavily armored, four-conductor cable was laid and proved to be most efficient. These cables were spliced and laid with improvised material by naval personnel wholly inexperienced in this kind of work.

Its successful accomplishment showed the versatility of the officers and enlisted men of the Navy.

For the purpose of operating air stations, direct telephone lines were built. These connected Rochefort with La Pallice, St. Trojan, Arcachon, Gujan and Moutchic.

The MARIETTA and the MARTHE SOLANGE were connected by cable from the fort at Le Verdon.

RADIO

A radio receiving station with antenna was constructed at Rochefort, the receiving instruments being in the District Commander's office. Later, a distant-control was made to the French station at Soubig. This was a great help in operating the patrol vessels.

A long-wave receiving station was constructed. This served for intercepted messages and for the press news. The radio establishment was most efficient.

Radio schools were opened at Bordeaux and Rochefort. All operators arriving on merchant vessels were required to attend this school and were there given much-needed instruction. The operators from cargo vessels were usually inexperienced—they had little training and in some instances were wholly incompetent. It was necessary to coach these men, and they proved to be apt pupils.

All radio installation on vessels was thoroughly inspected and put in good condition.

PORTS

The ports of the district grew in importance rapidly after February 1, 1918. Shipping increased, and as most of the vessels were manned by the Navy, the details of administration increased. Officers on cargo vessels were wholly inexperienced in naval customs and procedure and they had to be assisted in many ways.

Shipping Board vessels often presented a problem for our solution. The American consuls were charged with providing for their needs but usually were unable to do so. The same conditions applied to the United States Army Chartered

After moving from Boston to Provincetown, in groups of one or two, on August twenty fifth, the squadron began its long trip across the Atlantic to France on the afternoon of August twenty seventh, 1917. The HUBBARD and EDWARDS were left behind; the HUBBARD having sunk alongside the dock at Boston and the EDWARDS never having arrived from Norfolk. Attached to the squadron was the U. S. S. BATH, detailed to carry surplus stores for the vessels, also, coal, supplies and gasoline for the S. C. patrol boats. Six 100-foot S. C. boats, manned by the French, were sent to join the squadron to be escorted to France.

A route was chosen with Ponta del Gada, Azores, as the first port. The voyage to the Azores was made in almost ideal weather. This was fortunate, as it gave the commanding officers an opportunity to become acquainted with and organize their ships. Ponta del Gada was reached on September sixth. The squadron lay in the picturesque little harbor for five days, being delayed by slow delivery of coal and water, and then, on September eleventh, at 10:00 a. m., got underway for Brest, having rough weather en route, which made it difficult to keep formation. However, all the ships except the BATH were together when the tall les Pierre Noire light loomed up in heavy mist on the morning of the eighteenth of September 1917. With the WAKIVA leading, the squadron entered Brest harbor in column formation and moored inside the breakwater. The BATH arrived later in the day. After arrival at Brest the Squadron Commander received a cable from Admiral Benson, Chief of Naval Operations, saying "Well done".

The journey from the United States to Brest took seventeen days. This is the record for small squadrons making passage from the United States to Europe.

The time the squadron lay at Brest will always be remembered by officers and men as one of the most trying through which they passed. Disbanded as a squadron almost immediately after arrival, against strenuous protests of the squadron commander, the ships were assigned to convoy duty with the yachts—a service for which they were not fitted. The first convoy work was done on October 1st, 1917. A few

Chapter XVI

ACTIVITIES OF MINE-SWEEPING DIVISION AND U. S. NAVAL BASE LORIENT

Since this chapter concerns principally a squadron of mine-sweepers, it is not a record of brilliant exploits; rather it is that of steady, continuous, persevering effort during many months of war, always in waters infested by mines, with the constant knowledge that to touch a mine meant death and the certainty that mines sooner or later would be encountered. The sweepers in Squadron Four have done their work in the Bay of Biscay, on the treacherous coast of the west of France, where for nearly a year they swept for mines placed in the convoy routes; cleared old mine fields which had taken heavy toll of ships around Belle Ile and the entrance to the Loire River; and safe-guarded convoy routes to safe anchorages; also assisting to pilot many great troopship convoys bound for the port of St. Nazaire.

About the twentieth of August, 1917, the squadron began to assemble in the Boston Navy Yard for the trip across to European waters. The HINTON, McNEAL, CAHILL, COURTNEY, HUBBARD, BAUMAN, JAMES, and DOUGLAS steamed up from Norfolk, where they had been prepared for sea by a small army or navy yard workmen. The REHOBOTH and LEWES arrived from Philadelphia, where they had also had their armament of two three-inch guns and supplies put aboard in haste. The Commanding Officers encountered the most extreme difficulties in securing essential supplies and engine room equipment—with the day of departure drawing close at hand, while the inexperience of the crews added to their troubles. All of these ships as well as the ANDERTON, which fitted out at Boston, were converted Menhaden fishing boats. The U. S. S. WAKIVA, Flagship of Captain T. P. Magruder, U. S. Navy, Squadron Commander, was a converted yacht.

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days later, October fourth, the REHOBOTH foundered off Ushant in a heavy sea. The officers and men went aboard an English trawler. Then began long weeks of waiting at a French navy yard while winches and the French sweeping gear were installed on the sweepers.

In November the squadron was again formed as a unit with Captain T. P. Magruder, U. S. Navy, once more in command. On November thirteenth he called a meeting of commanding officers on his new flagship, the converted yacht GUINEVERE, and plans were outlined for the future operations of the squadron as a mine sweeping unit.

The McNEAL, CAHILL, ANDERTON and BAUMAN were the first ships to have their sweeping gear installed. They left Brest on December third and three days later got over their kites near Quiberon Bay for the initial tryout of the French sweeping gear. At first, of course, there were difficulties, but these ships soon became expert in sweeping and handling buoys, kites and knives. As soon as they had secured their equipment the HINTON, HUBBARD, LEWES, COURTNEY, DOUGLAS and JAMES joined the squadron at Lorient.

By the time the GUINEVERE arrived at Lorient, December fourteenth, 1917, the sweepers were ready to sweep their first mine fields. February thirteenth, 1918, the sweep wire of the ANDERTON exploded the first mine; and on the twenty first, the McNEAL and ANDERTON divided honors by cutting two mines each, in the mine fields in which the S. S. NAN SMITH had been sunk, in May, 1917.

At the very moment of re-organization and successful sweeping accomplishments, the squadron suffered reverses. The BAUMAN was steaming in a fog near Concarneau on January twelfth, 1918, when she struck one of the numerous rocks that make the region of the Glenans dangerous. Efforts were made by the ANDERTON to tow her to port, but she sunk before arriving at Lorient and her executive officer, Ensign P. J. Ford, U.S.N.R.F., and a few sailors had barely time to leave her before she plunged to the bottom.

Not long after this on January twenty fifth, 1918, the Flagship GUINEVERE, in attempting to make the port of Lorient in a fog, ran on the rocks and became a total loss. Continuous effort was made to float the GUINEVERE but without success. The equipment was salvaged and the engine and boiler will soon be salvaged.

With this incident ended the casualties; but the work of the squadron continued unabated until the end of the submarine warfare. The ships soon found that sweeping mine-fields was not to be their only task. Regular sweeping schedules, covering the convoy routes from Penmarch to Buoy des Boeuf's, were put into effect in cooperation with the famous Albatross and other French sweepers; and then, often on days assigned for relaxation and rest, "allos" called the sweepers out to reinforce coastal convoys; radio messages from incoming troopship convoys sent them hurrying to clear the Teignouse Channel and other important passages around Belle Ile; the activity of submarines near Penmarch necessitated the night patrol of the waters there with long hours of listening-in through the "C" tubes. The grounding of the BEAUFORT and the wreck of the LONG BEACH required assistance from vessels of the squadron.

Among the notable achievements of the sweepers was the sweeping of a mine field, in July, south of Belle Ile. The HINTON, CAHILL and JAMES swept this field in heavy weather and on July seventeenth the JAMES, commanded by Lieutenant (jg) John R. Roil, U.S.N.R.F., cut four mines in the short space of fifteen minutes.

The Division Commander, Lieutenant Commander Archibald McGlassan, U. S. Navy, on the HINTON at this time, led his division with distinction, as was his custom at all times. The work of the HINTON, CAHILL and JAMES received high praise from Vice-Admiral Aubry, Prefet Maritime.

When the GUINEVERE was lost, the Squadron Commander, Captain Magruder, found himself without either flagship or suitable headquarters ashore, and for weeks the operations of the squadron were directed with scant facilities. It was not until March fourth, 1918, that adequate office space was secured in the Inscription Maritime Building of the

French Arsenal. About the same time Lieutenant Commander Stevens reported as Senior Aide to assist in the task of organizing the Base and the District of Lorient, which stretched along the coast from Penmarch to Fromentine. It was a continuous struggle with inadequate repair facilities, inadequate supplies, insufficient store rooms—even such things as typewriters were not to be had.

The major part of the efficient repair work on the ships had to be done by the men on the ships, who were at the same time doing the most active service afloat. It was necessary to make use of the French machine shops already well occupied with French work, for it was only with the arrival of the U. S. S. PETER CROWELL, on October eighth, with considerable machine shop equipment, that the Base was able to have its own machine shop.

The work of directing and administering the Squadron and the Base was facilitated by the arrival at Lorient in April of Vice-Admiral Aubry, as the new Prefet Maritime. The Prefet Maritime and Capitaine de Vaisseau Jolivet, C.D.P.L., at all times gave every assistance. The relations between the officers of the two services were ever cordial, sympathetic and friendly.

Through the courtesy of the French, patients were sent to the French Maritime Hospital for many months, due to long delays in the shipment of hospital equipment to the Base. With the aid of the Red Cross the Base Hospital at La Perriere began operations and received its first patients on August twenty sixth, 1918.

The administration of the Base and Squadron Four was at all times carried out in close co-operation with the French. Liberty hours were governed by the same regulations as were enforced by the French naval authorities. A sweeping schedule was arranged for the daily sweeping of the coastal convoy routes between Penmarch and St. Nazaire. Provision was made for the operation of three groups of sweepers, one to be composed of American, another of both French and American and a third of French druggers alone. These groups

swept continuously for eight days and spent three days in Lorient resting and taking on coal, water and provisions.

Just before the signing of the armistice, on November eleventh, 1918, the Base was enlarging rapidly, preparatory to actively directing all the naval units and air operations comprised in the District of Lorient. The Naval Port officers at St. Nazaire, Nantes and Quiberon were already under the command of the District Commander at Lorient and the Army Signal Corps had completed placing direct telephone and telegraph lines which connected Lorient with the Naval Air Stations at Ile Tudy, La Trinite, Le Croisic, Paimboeuf, and Fromentine. Large oil tanks were in process of erection which would have permitted a considerable number of oil burning destroyers and patrol boats to make their base in the well-sheltered harbor of Lorient, in addition to the other vessels of Squadron Four.

The operations of Squadron Four had not ceased with the signing of the armistice. The sweepers were kept actively engaged sweeping a wide stretch of water all along the coast to make certain that no stray mines were left to interfere with commerce. These waters are to be carefully swept to the 100-meter curve. The Boche were laying mines up to the very last days, for, as late as October eighteenth, the McNEAL cut a new German mine placed in the path of a troopship convoy sailing into Quiberon Bay en route for St. Nazaire.

At the time of the signing of the armistice the District had grown from practically nothing into a large organization with Lorient as the District Commander's Headquarters. The district extended from the Point of Penmarch on the north to the Goulet of Fromentine on the south, comprising the Naval Port officer at Quiberon, whose duty it was to route convoys to and from Quiberon Bay; Naval Port Officer at St. Nazaire who assisted the Army and the French in docking, unloading and routing American ships, and enforced the naval regulations at this port; Naval Port Officer at Nantes, who performed duties similar to the Port Officer at St. Nazaire; the Seaplane Station at Ile Tudy; the Kite Balloon Station at La Trinite; the Seaplane Station at Le Croisic; the Dirigible Balloon Station at Paimboeuf; the Seaplane Station at From-

entine; Squadron Four Patrol Force and Base Nineteen at Lorient.

Squadron Four was composed of the U. S. S. PIQUA, a yacht commanded by Lieutenant Commander John Borden, U.S.N.R.F., and the mine sweepers: HINTON, commanded by Lieutenant Commander Archibald McGlasson, U.S.N.; ANDERTON, commanded by Lieutenant (jg) Walter M. Gorham, U.S.N.R.F.; CAHILL, commanded by Lieutenant Home J. Parent, U.S.N.R.F.; COURTNEY, commanded by Ensign Harry N. Sadler, U.S.N.R.F.; DOUGLAS, commanded by Lieutenant (jg) Ralph B. Romaine, U.S.N.R.F.; HUBBARD, commanded by Lieutenant Frederick C. Muller, U.S.N.; JAMES, commanded by Lieutenant (jg) John R. Roil, U.S.N.R.F.; LEWES, commanded by Ensign Godwin Werliin, U.S.N.R.F.; McNEAL, commanded by Ensign James B. Dryden, U.S.N.R.F.

Base Nineteen was an administrative and supply base. The operations of Squadron Four Patrol Force were directed here. The administrative offices were located in the French Arsenal, the Flag Office being in a building formerly known as the Inscription Maritime and the Supply Office being in another building near two commodious store houses which also had been secured from the French. As there was no available place in the Arsenal for use as a barracks, the enlisted personnel was housed in three converted hotels situated near the Place Alsace Lorraine. There were 260 men quartered in these buildings.

A hospital had been established at La Perriere, a suburb of Lorient, capable of caring for 150 patients. The main building, a large and roomy chateau had been completely over-hauled, painted and furnished with showers, toilets, electric lights and other necessities. Patients were received from all the stations of the District and from numerous supply ships which docked at St. Nazaire.

The Communication Department had developed from a handful of men into an efficient system made up as follows:

Telegraph. The District Commander was connected by

telegraph to Brest, Paris, St. Nazaire, Nantes and all Air Stations in the District through the Prefet Maritime at Lorient, over the French lines. These lines were already overworked with French official business which made it difficult to get necessary American messages through. American operators had been placed at the French stations to handle all American business which brought the service up to approximation of the American standard. This line had been relieved considerably by a leased line to Brest and Nantes which was handled by experienced American operators. An all-American combined telephone and telegraph line was completed for the Navy shortly after the signing of the armistice by the Army Signal Corps. This line connected all Naval Port Officers and all U. S. Naval Stations in the District with the District Commander. This gave direct, quick and efficient service.

Telephone. A thirty-drop telephone switchboard had been installed connecting all American offices at Lorient with a connecting line to the French system. This not only gave an efficient local telephone service but connections with the entire French systems could be obtained through the Prefecture. A direct line was constructed from Brest to St. Nazaire through Lorient. This was not completed until after the armistice.

Radio. An interception station was maintained at the Flag Office where watch was kept on two wave lengths at the same time by two operators. Official radio messages were sent from the French station at Penmene which was operated by distant control system from the District Commander's communication office. This distant control system was installed by the communication force of the District Commander.

A fuel-oil station had been in the course of construction at Kergroise Landing so that oil burning vessels could be based on this District.

A naval prison had been established and maintained at Kergroise for the confinement of prisoners received from all over this District.

A machine shop had been put in operation within the

Arsenal. This shop with its force of sixty men took care of the repairs to the vessels of Squadron Four and any other naval vessel that touched at Lorient. There was also a repair shop in the French hulk "Scorpion".

PERSONNEL—DISTRICT OF LORIENT

	Officers	Men	Total
Naval Base Nineteen, Lorient	35	260	295
Naval Base Eight, St. Nazaire	12	49	61
Naval Port Office, Nantes	1	11	12
Naval Port Office, Quiberon	2	8	10
Seaplane Station, Ile Tudy	20	361	381
Kite Balloon Station, La Trinite	11	143	154
Seaplane Station, Le Croisic	20	340	360
Dirigible Ballon Station, Paimboeuf	31	520	551
Seaplane Station, Fromentine	21	357	378
Naval Hospital, La Perriere, Lorient	5	30	35
On Vessels attached to District of Lorient	38	450	488
TOTALS	196	2529	2725

Chapter XVII

ENEMY SUBMARINES

Every effort was made to obtain information in regard to the present location of enemy submarines. Not only so, but, by an analysis of their past and present movements and of the past movements of other submarines than those at present threatening, every effort was made to determine the probable movements of enemy submarines in the near future and to determine the probable areas where they would be concentrated.

Information as to the location of submarines was secured in a number of ways.

Whenever a vessel sighted a submarine she immediately sent out by radio, at full power, in plain language, the word "ALLO", repeated two or three times, with the position of the sighting. The word "ALLO" is simply the French word for "Hello".

If the vessel were attacked or in danger she would either combine it with the word "ALLO" or send independently the letters "S.O.S." If she were torpedoed she would send any information which might be of interest. Frequently, however, a vessel attacked would sink so quickly that no details could be obtained but only the news that she was torpedoed and sinking.

The French had a series of look-outs and signal stations covering the entire coast. Special telegraph lines connected them to all other stations in their district and to district headquarters. At each station a man was always kept on watch with a powerful telescope.

These stations had orders to report absolutely everything they saw and heard—the communication was very rapid. They reported not only suspicious objects sighted, but the movements of Allied ships, the conditions of the weather and the sea—in fact, anything that might possibly be of interest,

such as the sound of gun-fire or of whistles.

By means of this system we were enabled not only to learn of the possible presence of enemy submarines, but also to keep in touch with the movements of friendly men-of-war operating near the coast and the passage of convoys up and down it. Hence, if a submarine were sighted, we could take steps to send the nearest armed vessels to search and attack, could divert the convoy to another route or even could turn it back if necessary.

As the war went on, both the British and the French established a number of radio stations and plotted the bearing of any vessel using its radio. These stations were connected by special wire, and there were wires between some of the British and the French stations. The result was that when an enemy submarine used its radio for communicating with another submarine or with its home station, the shore radio stations took its bearing. By plotting these bearings on the chart the position of the submarine could accurately be determined. In fact, it was surprising how closely these lines would sometimes cross.

This plotting method had a further advantage: when a submarine finished sending, it sometimes signed off with its call letter, and thus we were able to trace the movements of a submarine for several days and to predict with greater accuracy its probable movements in the future.

By plotting the position of all submarines we could arrive at a fair estimate as to what part of the neighboring waters the enemy was concentrating in for the time. Thus, it was made easier for our ships to avoid such areas of concentration.

No doubt information was also obtained through spies. But as this information only reached us indirectly, we had no knowledge as to the scope or efficiency of the spy system which was, of course, most jealously guarded.

METHODS USED TO DEFEAT SUBMARINE CAMPAIGN

There were two principal measures which could be taken to effect the safe passage of troopship and storeship convoys

through submarine-infested waters. The first measure was to elude the submarine. The second measure was to prevent the successful attack of a convoy when a submarine had sighted or gotten in touch with it, followed by efforts to destroy the submarine.

Naturally, as the safe passage of convoys was imperative and no escort could absolutely insure immunity from attack, the first measure was more important. Every effort was devoted to routing the convoys through what were considered the safest possible waters.

In the early days of the war it was almost a wasted effort to send a destroyer to look for a submarine. The submarine could always sight a destroyer or other anti-submarine craft long before it was itself seen, and by submerging and then listening through detectors could remain concealed until the danger had passed. With the development of listening devices for the use of surface craft, however, it became somewhat more practicable to locate a submarine. But these listening devices never became perfected during the war and a submarine running very slowly when submerged was almost sure to escape detection.

Furthermore, the area submarines normally operated in was great in extent, and to hunt for them was like looking for a needle in a haystack. Toward the latter part of the war, special units of sub-chasers under escort of a destroyer were sent out to hunt for submarines. Their method was to proceed to an area where a submarine was believed to be working and there patrol for as long a time as their fuel lasted.

This method was not very successful, and, although submarines were located in a few instances, it is doubtful if a large percentage of those located were destroyed. No doubt, the method did result in driving submarines out of the area in which they were working, and so prevented the enemy from making a successful attack.

As the enemy submarine took care to avoid contact with anti-submarine craft operating independently of convoy, it is evident that the best way for an anti-submarine vessel to locate a submarine was to accompany a convoy. By escorting

a convoy, we achieved a double purpose:—the convoy was given the maximum protection and our anti-submarine craft were present where submarines were most apt to be encountered.

What we always desired was that when an enemy submarine was sighted in the vicinity of a convoy or when a convoy was attacked, all destroyers that could be spared should leave the convoy and should devote every effort to finding and destroying the submarine. But on account of the few destroyers available and the vast amount of escort duty required, this desirable procedure could seldom be adopted without weakening the escort unduly.

The only weapons possible for a vessel to employ against a submarine were the ram, the torpedo, the gun and the depth charge.

It is true that submarines were rammed by various types of vessels during the war, but the factor of luck entered into the matter as much as did the factor of good judgment. The good management lay in skillful manoeuvering when an unsuccessful submarine attack was made. The good luck lay in having a submarine appear—to its own surprise and the surprise of the attacking vessel—in or near the path of the attacking vessel and so close that the submarine could not escape.

A convoy crossing the English Channel between Penzance and Brest on a dark night had an experience of the sort indicated. The convoy was a slow one, probably making about seven knots an hour and was escorted by yachts and trawlers. One of the trawlers was even slower than the other vessels and, following astern was making all speed possible in its effort to catch up with the convoy. Suddenly, without any warning, a submarine loomed dead ahead. Probably the submarine was pursuing the convoy and supposed convoy and escort had passed. Without changing course more than a degree or two, the trawler rammed the submarine, destroyed it and returned to port—with her bow somewhat damaged.

The torpedo was the weapon usually employed by one submarine against another. No successful results were ob-

tained in this way by the French submarines off the west coast of France; but successful use was made of this weapon by certain British submarines.

The gun was of little value, as a submarine usually submerged upon being sighted. When submarines attacked convoys with torpedoes they were seldom seen before the torpedoes were fired and, unless the ship was isolated and sinking, was seldom seen afterward. When a submarine engaged a ship with gun-fire she remained as such distance that her own shots would reach the ship she was attacking while she would keep out of range—if she found that the guns of the attacked ship could reach her, she promptly submerged.

The depth charge was the best weapon we had. Not only was it being improved up to the end of the war, but the means for utilizing it were being improved.

At first, the depth charge contained an explosive of only about fifty pounds weight. Ships carried only about half a dozen and were, therefore, sparing in the use of them. The number carried and the weight of the charge grew until ships were equipped with between thirty and forty, three hundred pound charges, capable of being set to go off at various depths.

The doctrine was established of using depth charges freely and of laying them around a position in which a submarine had been sighted so as to cover the area it might be escaping through. As a consequence, hundreds of depth charges were used every month. Although the number of submarines destroyed thereby may not have been great, yet, the effect on their morale was very strong.

The American officer who was taken on board a submarine after the torpedoing of the PRESIDENT LINCOLN, reported that the next morning, when the submarine was attacked by the destroyer SMITH, he counted about twenty explosions of depth charges. All of these shook the submarine to a greater or less degree. The effect on the crew of the boat may easily be imagined.

At the beginning of this sort of warfare, it was necessary for the destroyer to reach a position where the submarine was supposed to be before the former could drop the depth charge.

But, eventually, a type of gun was developed which could throw the charges some distance, thus gaining time in launching the attack.

Mines were planted in certain sections of the coastal waters where it was most probable that submarines would operate. The development of the mine was probably one of the most important anti-submarine measures, or, at least, would have become so.

ELUDING SUBMARINES

Convoys approaching the west coast of France and the British Isles, at a certain stage of their voyage, would necessarily pass through a fairly limited part of the Bay of Biscay or the Eastern Atlantic.

For a certain portion of the passage, shipping bound for the west, south or east coasts of England, and for the west coast of France, would follow approximately the same route and it would not be difficult for an enemy to figure the position at which the routes would separate. The area near the coast through which all shipping had to go may be said to lie between 50 degrees north and forty five degrees north, and between seven degrees west and fourteen degrees west.

We had not been long on the coast of France when this fact became apparent to us. Once convinced of it, we did not find it difficult to adopt a route for our ships that would avoid this area as far as possible—a procedure more practicable for us than for the British.

Our practice was this: when ships were west-bound, we ran them well to the southward while still keeping them close to the coast of France until they were in the general vicinity of forty five degrees north; then we sent them to the westward. The reverse process was followed for east-bound convoys.

The routes of these convoys and their hours of sailing were varied materially. If the submarines were active to the northward, the convoys could be brought in and despatched farther south. If the area of enemy activity moved south, the convoys could be taken to the northward again.

The favorite time for submarines to attack a convoy was at dusk and at early daylight. In order that the submarines' task might be made as hard as possible, the hours of sailing of the convoys were changed from time to time. Thus dusk and early daylight would not find them always in the same longitude.

The routing of convoys through the submarine zone was materially affected by the movements of other convoys. Convoys showing no lights crossed the Bay of Biscay in a northerly and southerly direction as well as in an easterly and westerly direction. The damage which could be done by one convoy running into another was greater than an enemy submarine could do and would be inexcusable.

To avoid being compelled to disclose the route of our convoys we agreed to route them clear of all British convoys provided the British would give us information as to their routings and movements. This meant that we would have to keep our convoys clear of all other Allied convoys.

There were sometimes fifteen or sixteen convoys in the Bay of Biscay or in the vicinity at the same time, so that when combined with the necessity of keeping our convoys clear of submarines as far as possible, the problem was a difficult one.

The practice of routing convoys well to the southward was varied by sending them well to the northward when that particular area appeared to be fairly clear of submarines. This method of sending convoys east and west by a round-about route had disadvantages: it kept them longer in the submarine zone and it kept our escorting vessels at sea a longer time. Then, too, the procedure increased the fuel consumption—which always had to be watched carefully—and decreased the time of their stay in port, a time utilized for rest by the personnel and for the upkeep of the materiel. However, the advantages far outweighed the disadvantages.

LOSSES OF VESSELS UNDER OUR PROTECTION

At different times a number of ships both eastbound and westbound were lost out of storeship convoys. There were several reasons why more of these ships were lost than were

lost out of troopship convoys. They were slower ships and could not manoeuvre as quickly as troopship convoys. They came in larger numbers and so were found more easily by submarines than the troopship convoys were. If the escorting vessels had to be reduced below the desired number, the storeship convoys were slighted rather than the troopship convoys. Nevertheless, we gave them all possible protection and the latter factor was the least of the ones that contributed to their losses.

In addition to the above points, it must be remembered that these storeship convoys were under Allied control. The French and Americans, or the British and French and Americans, as the case might be, were interested in these convoys. Their handling, while always effected harmoniously, was not always exactly what we would have chosen had we had supreme and undivided control as we did have over our troopship convoys. Over the movements and routing of all troopship convoys we had supreme and undivided authority, and the responsibility for their safety rested with us.

No troopship coming to the coast of France escorted by an American escort was ever successfully attacked, and only five troopships westbound without troops were successfully attacked. Of these five, three were sunk and two returned safely to port.

Two of these five ships were torpedoed in the early days of our activities and before our method of protection and routing had been well established. Of the other three ships, one was torpedoed and sunk after the escort had left her, believing she was safe from further attack, and the other two were torpedoed during the height of the submarine campaign and while under escort.

The question was sometimes raised why east-bound troopships were brought through safely while they were occasionally lost on the west-bound trip. We once received a cablegram from the Navy Department stating that apprehension was felt on account of the loss of troopships bound to the westward.

Some persons believed that the loss was possibly due to

a leak in information as to the routes taken by west-bound ships. Others thought that it was because a lesser escort was being given west-bound vessels than was being given east-bound vessels. Others supposed that the route westward was less carefully gone into than was the route eastward. None of these reasons were correct—but the explanation is simple.

After taking west-bound vessels through the submarine zone, the escorting vessels had to leave them, join an east-bound group and bring the latter to port. The latitude where east-bound groups would arrive off the submarine zone and the course of the east-bound groups to that point were decided by the Navy Department. We were given this information in order that we might meet the east-bound groups.

Therefore, we had so to route our west-bound ships that they would clear Allied convoys crossing their course and would clear enemy submarines. And yet we had so to route them that our escort could join the east-bound convoy which had to be met before the convoy arrived in the submarine zone. In other words, the west-bound routing was a compromise between maximum requirements of safety and the necessity of joining up with an east-bound group. But the escort having once joined the east-bound group we had nothing to consider but the bringing of it through the safest possible waters.

If we had destroyers enough to have let us have no other thought than to send our west-bound ships through an area of maximum safety, it is firmly believed that no troop transports, whether east-bound or west-bound, would have been successfully attacked or have been lost.

Chapter XVIII

AVIATION

The first armed unit from the United States to land in France, of either the Army or Navy, was an Aviation Detachment under the command of Lieutenant Commander Kenneth Whiting, U.S.N., which landed in June, 1917. A few weeks later, Captain H. I. Cone, U.S.N., arrived in France, having been placed in charge of the Aviation operations abroad. This officer was transferred to London in August, leaving Captain T. T. Craven, U. S. N., directly charged with French Aviation affairs and assigned to duty on the staff of the Commander, U. S. Naval Forces in France.

In building up Aviation in France, a stupendous work was accomplished and completed in the face of serious obstacles, one of which was incident to conducting affairs in a strange country where both custom and language were different from those with which there was familiarity. Transportation from the United States to France was difficult, but it was even more difficult to ship materials from points on that coast to other points than to have them delivered in Europe directly from our home ports. Generally, aviation stations were constructed by our own forces, and men and officers enrolled from all walks in life, were found well qualified to answer practically every call made upon them. In every instance, difficult situations were met and what often times seemed serious obstacles were overcome by the grim determination and persevering efforts of the young men making up the aviation service, many of whom now have left the Navy and resumed their civil occupations. A few contracts for construction were given the French. In the light of subsequent events, it is now easily seen that where the United States constructed its own stations without French assistance, the results were more satisfactory to ourselves than was the case otherwise.

In numerous instances operations were carried on by

personnel engaged in learning the new art of Aviation, while also, and at the same time, they were being employed in erecting their establishments. The flight records of our stations in France compare favorably with those of any Aviation stations abroad, and the best records of adjacent French centers were everywhere equalled and surpassed. In operating, considerable difficulty was involved through the inadequacies of the French system of communication. It became necessary to run several hundred miles of wires to various points on the coast and to supplement and improve the French plan in order to secure the communication desired.

At the close of hostilities, all of the United States stations on the French coast were prepared for or actually in operation. It is true that deficiencies and defects existed, but they are ever-present companions during war. In the lighter-than-air branch particularly, there were serious deficiencies which were being filled as rapidly as practicable through contracts placed in France for vessels of this class.

The sites selected for our activities are listed in the attached table. These were so distributed that not only parts of the routes to and from America could be covered, but convoys could be escorted up and down the coast under the cover of aircraft.

With the establishment of the U. S. Aviation on the coast, the submarine ceased its work of destruction near the shores of France, and only sporadic and generally ineffective hostile activity on the part of these vessels occurred in coastal waters. Aviation, of course, cannot claim full credit for this result. It will share, however, with the adoption of a daylight system of convoys and improved methods of escort by surface craft, the credit of having eliminated the enemy from this, a former fertile field of his endeavors.

According to U. S. reports, for an effective period of six months, six active U. S. Naval seaplane stations sighted 9 submarines, attacked 8, probably damaged 3 and possibly sunk 2. According to their official bulletins, the French within eighteen months with 12 plane and 2 dirigible stations, within the same territory as our stations, sighted 43 submarines, attacked 40, damaged 13 and probably sunk 15.

Station	Flights	Knots	Hours	Mines, Sight- ed	Sub- marines Attack- ed	Aircraft Comple- ment	PERSONNEL	
						Offi- cers	Men	
L'Aber Vrach	355	29,302	484	2		19	41	477
Brest	211	7,355	125			30	53	786
Ille Tudy	1,238	104,877	2,043		6	21	22	363
Fromentine	335	38,009	631			14	31	372
Paimboeuf	257	48,561	1,538			3	30	478
Le Cruisic	1,045	113,324	1,890			17	22	337
St. Trojan	246	19,533	328		2	11	26	343
Pauillac	372	15,085	245			84	121	3168
Moutchic	10,807	242,320	4,049			24	57	493
Araachon	106	8,727	138			7	26	312
Treguier	30	1,410	23			8	12	266

The stations were divided up and operated in accordance with the French system of prefectures, and no difficulty was experienced at any time in what is sometimes an annoying task—the coordination of allied military efforts. The results obtained by Aviation insofar as records are obtainable, are set forth in the table given above.

On March 21, 1918, the German army began a long prepared drive on Paris. Arrangements were made by the French to move various industrial activities from the vicinity of Paris, and covert preparations were made a second time to shift the seat of the government from that city. At the request of the Ordnance Section, U. S. Army, fifty Lewis guns, sights and spares were furnished Army Aviation.

An offer was made to the French Government by the Force Commander, of 7,000 Naval personnel for service with the land forces, should such be required because of the emergency. As a reply to this request, the following telegram was received from the French Government:

April 3, 1918.

"Vice Admiral de Bon and General Foch consider that present circumstances do not call for presence at front of this force since they have at hand

all forces needed period If such condition should arise General Foch will certainly call upon Force Commander and will accept offer period General Foch thanks Force Commander most warmly for this new proof of the ardor with which the United States participates in the war period Minister of War and the Minister of Marine were informed of the offer period Above opinions are those of General Foch and Admiral de Bon who are in accord period It is not deemed advisable to assemble and hold in readiness this force for possible use within fortnight".

JACKSON TO WILSON.

Of the forces offered the French 2,000 were to be taken from Naval Aviation, and complete preparations to organize the naval forces in France were made for this emergency.

Immediately upon the signing of the armistice preparations for the demobilization of Aviation activities were inaugurated. Contracts for out-standing orders were cancelled by telegraph, and a market was sought for the immense amount of materials on hand. The station at Dunkirk and the Northern Bombing Group, previously under British control, were transferred to the French Unit, in order that all business transactions could be conducted through one office. Materials desired by the Commission for the Relief of Belgium, by the Army and by the Red Cross were disposed of to those organizations.

It was a matter of some surprise to discover that the French desired to retain but two of the aviation stations constructed on their shores, and the demolition of others where temporary buildings had been erected was proceeded with without delay. Purchasers were sought for those stations which had been erected under contract through the French and were of a semi-permanent construction.

In order to permit the United States to dispose of the immense amount of material useful to the Commission for the Relief of Belgium, a Naval unit was loaned that organization. This unit, for many weeks was the only one working for the alleviation of the suffering and homeless inhabitants of the devastated region of Northern France. It carried on its work in a most satisfactory manner which reflected the highest

credit upon those engaged in this humanitarian work and the service to which they belonged. My successor in command in France and other officers concerned in this enterprise were tendered the thanks of the French Government for their services in this activity.

It was a pleasure to work with the young officers and men composing the Naval Aviation contingent. With the exception of the Commanding Officers of the various stations, they were, for the most part, young Reserves, and brought all the enthusiasm of youth to their difficult tasks. Most of them were entirely unfamiliar with Naval methods, and entirely unaccustomed to the curious experiences which, in many cases, became theirs in isolated districts. Their efforts everywhere brought forth the enthusiastic acclaim. Breaches of discipline were rare and it is believed that the personnel of the aviation service quit France retaining the admiration and respect of the French people with whom they were associated.

The services rendered by Captain T. T. Craven, U.S.N., Aid for Aviation, and in charge of all aviation activities, were of the highest order. His work of organization, administration and operation could not have been excelled, and merited and received the commendation of the Commander, U. S. Naval Forces in France.

Chapter XIX

INCIDENTS OF THE NAVAL SERVICE

Naval Operations on the coast of France were full of incidents that accorded with the best traditions of the naval services and reflected the exercise of courage and resourcefulness of the highest order. Some of these incidents were spectacular and would appeal to the public fancy. Others, requiring an equal degree of fortitude and seamanship, perhaps, were such as would appeal more to the trained seafarer than to the layman.

TORPEDOING OF THE U. S. S. ANTILLES

The troop transports HENDERSON and ANTILLES and the storeship WILLEHEAD were anchored in Quiberon Bay on the morning of the 15th of October, 1917. The CITY OF ATLANTA was to join them later. The original escorts available were the CORSAIR, APHRODITE, WAKIVA, ALCEDO and KANAWHA, but the WAKIVA was forced to remain behind on account of boiler trouble.

Word having been received that the CITY OF ATLANTA would not be ready to leave St. Nazaire until the morning of the 16th, the APHRODITE was left behind with orders to escort the CITY OF ATLANTA when she was ready for sea. The convoy got underway at 3:52 on the afternoon of the 15th, stood out of Teignouse Channel, took formation, and began to zig-zag.

The night was uneventful except that the weather became unsettled with fresh to strong head winds and increasing seas.

On the morning of the 16th, the KANAWHA, which was lightly built, reported that she was shipping heavy seas and was taking water below and would not be able to keep up if the sea became heavier. The WILLEHEAD also fell behind and the speed of the convoy dropped to nine knots in order to let her regain position, and was then increased to ten knots. By 5:00 p. m. it was necessary to direct the KAN-

AWHA to return to port. At 5:40 zig-zag was stopped on account of thick weather, but was resumed at 8:00 p. m.

The morning of 17th October was thick until about daylight when it cleared with a moderate sea from the southwestward.

At 6:40 a. m., course was changed 20 degrees to the left in accordance with zig-zag. About six minutes later the ANTILLES, then directly astern of the escort vessel CORSAIR, about 1800 yards away, was seen to sheer to starboard and the HENDERSON was seen to hoist a signal. It was difficult to make out the signal, but the CORSAIR, which carried the Escort Commander, headed toward her at full speed, and then it was noticed that the ANTILLES was settling by the stern. Almost immediately thereafter, she upended and sank at 6:52 a. m.

The HENDERSON immediately turned to starboard and the WILLEHEAD to port and escaped without further incident. The escort vessels searched for the submarine, and picked up survivors from the ANTILLES. About 70 lives were lost. At no time was anything seen or heard of the submarine.

There was nothing unusual about the torpedoing and sinking of this vessel, except that the inadequacy of the available escort at our disposal was shown by the fact that three ships were at sea escorted through force of circumstances by only two yachts.

TORPEDOING OF THE U. S. S. FINLAND

This vessel was one of a convoy of three ships escorted by four destroyers and three yachts. She was torpedoed on the 28th of October, 1917.

She sailed from Quiberon Bay the afternoon of the 27th of October and was torpedoed the following morning about 9:26 a. m., being hit just forward of the bridge on the starboard side, six minutes after a change of 60 degrees had been made. Due to lack of speed the escorting yachts had not had time to regain their positions forward of the beam.

Although a great many boats were lowered and some of them swamped, the escorting vessels rescued most of the

survivors and the loss of life was very small. The submarine was not seen before or after the torpedoing.

It was soon seen that the FINLAND would not sink. She proceeded to Brest under her own steam, where she docked, repaired, and resumed service as a troop transport.

PROBABLE DESTRUCTION OF SUBMARINE BY KANAWHA, NOMA AND WAKIVA

The KANAWHA, Lieutenant Commander H. D. Cooke; NOMA, Lieutenant Commander L. R. Leahy and WAKIVA, Lieutenant Commander Guy Davis, sailed from Quiberon Bay on the afternoon of 20 November, 1917, escorting the storeships KOLN and MEDINA. The storeships were in line with the KANAWHA steaming ahead.

At 6:20 p. m., the KANAWHA fired two red stars followed by a blast on the siren and at the same time turned around and headed back toward the convoy. The other escort vessels proceeded to her at full speed and formed line in order to cover the great possible area in searching for the submarine. After steaming back and forth over the area in which the submarine had been sighted, there was nothing seen. The search was discontinued and the escort vessels started to rejoin the convoy.

At 6:50 the NOMA, which was to the right, gave the alarm and fired a depth charge, whereupon the WAKIVA headed toward her at full speed, the crew being at quarters. A few minutes later, when about 1½ miles from the NOMA, the WAKIVA sighted a periscope about 100 yards distant on the port bow. The submarine was going in the opposite direction to that of the WAKIVA and drew rapidly abeam and turned toward the WAKIVA as if to use a bow torpedo tube. The WAKIVA'S rudder was put hard left and the submarine headed toward the WAKIVA'S wake. The WAKIVA opened fire—the third shell apparently struck the periscope. Thereafter it was not seen again.

As it appeared that the submarine was crossing her wake, the WAKIVA dropped two depth charges. Both functioned perfectly, and shortly thereafter the submarine was seen to break water directly over where the depth charges were

dropped. The WAKIVA again passed over the spot above which some wreckage and considerable oil and air bubbles were seen, and dropped three more depth charges. The explosions were followed by more oil, air bubbles and wreckage. On passing the third time, it was thought that some men were seen among the wreckage, but on coming back they had disappeared.

About this time, the NOMA, which was about a mile or so away, apparently sighted another submarine. She dropped a number of depth charges. Nothing more having been seen of the submarine, the WAKIVA and NOMA rejoined the convoy which was escorted safely through the war zone.

During the night a vessel, believed to be an enemy submarine, was heard repeatedly calling another vessel or station, but the call was never answered.

THE DESTROYER STEWART

The STEWART, one of our oldest destroyers, Lieutenant Commander H. S. Haislip, was the principal actor in three notable incidents on the coast. The fact that she was one of the oldest of the vessels operating in France only serves to increase the credit due her and her personnel. In contrast to modern destroyers, she had old reciprocating engines, was a coal-burner, and had little speed and a comparatively short steaming radius.

On March 16, 1918, the STEWART formed part of the escort for the coastal convoy which sailed that afternoon from Quiberon Bay for Brest. The night was dark and foggy and the course of the convoy lay through narrow waters with shoals to the southward. Strong currents ran in these waters.

At five-thirty in the morning of March 17, 1918, the British steamer WILLIAM BALL was rammed by another British steamer, the FALSTAFF, and seriously damaged. She seemed to be sinking and the Captain, officers and crew soon abandoned her.

Hearing the crash of the collision, the STEWART proceeded at full speed to the vicinity of the WILLIAM BALL—the BALL'S officers and crew were in the boats nearby. They were induced to return on board and to start the engines

with the view of taking the ship to shallow water, but it was found that she could no longer be steered.

The STEWART came alongside and secured to the damaged ship by lines, then headed her for the beach and made all possible speed.

The WILLIAM BALL sank lower and lower, until there was grave danger that she would founder and carry the little STEWART with her. At 7:25 a. m., her main-deck was awash. She sank with the STEWART still secured alongside. But as she sank, the lines carried away one by one. However, there was still doubt as to the STEWART'S getting clear, when the BALL took the bottom—the STEWART was freed.

As a result of the prompt and efficient action of the STEWART, the cargo of the BALL was salvaged and the vessel herself saved.

On the evening of April 17, 1918, the American ship FLORENCE H., with a cargo of twenty two hundred tons of smokeless powder, was lying in the harbor at Quiberon Bay. She had just arrived from the United States and was awaiting further convoy to the southward.

The other vessels of the convoy and escort were anchored about her, when, at 11:00 p. m., without warning of any sort, she was suddenly seen to burst into flame.

It was at once evident that at least a portion of her cargo of powder had exploded. The force of the explosion and the intensity of the heat were so great that the FLORENCE H.'S hull disintegrated in places and boxes of blazing powder spread over the surface of the sea in the vicinity. She carried a crew of seventy five men, and it was clear that not only was the vessel lost but, that her entire crew would be killed unless immediate help could be given.

Flames were shooting a hundred feet into the air and the water all about was lighted to the brightness of day by burning boxes of powder. It seemed impossible that any vessel could get close enough through the burning barrage about her to save any of her personnel. In about ten minutes she split wide open and sank.

Immediately upon the explosion the STEWART and the converted yacht SULTANA, Lieutenant Commander F. A. La Roche, also the converted yachts WANDERER, Lieutenant Commander P. L. Wilson, and CHRISTABEL, Lieutenant Commander M. B. McComb, headed for the stricken ship.

The burning cases and wreckage appeared like enormous rafts, so thickly were they packed together. Cases were exploding and shooting their gases into the air like enormous torches. The flames rose ten and twenty feet and made whistling noises as acetylene torches might have done. Cries could be heard from the flaming wreckage in the water—toward this the commanding officer of the STEWART headed his ship.

By this time, all the escorts of the convoy and of another convoy approaching the anchorage had come up and lowered lifeboats. But on account of the thickness of the burning debris they were unable to get close enough to be of much assistance. Rowing was out of the question and the boats had to be poled. Too much praise cannot be given for the magnificent conduct and fearlessness of the men who worked their way through and around burning ammunition regardless of their personal danger.

On account of their wooden construction, the yachts present could not get through without catching fire. So the STEWART, followed by two old destroyers, the WHIPPLE, Lieutenant Commander H. J. Abbott and the TRUXTON, Lieutenant Commander J. G. Ware, steamed into the wreckage in order to open up lanes for the small boats and to throw lines to men in the water. The light from the burning ship and from the exploding cases in the water made the vicinity as bright as day—by this light men could be seen clinging to cases as yet unexploded.

The danger for the rescuing destroyers may be estimated when it is remembered that a large number of depth charges were carried on the stern of each of them. The explosion of any one of these charges would have blown off the stern of the ship. Then, too, the burning mass of flotsam so jammed the STEWART that at one time she could not manoeuver.

Three men were seen in a blazing lifeboat hemmed in by ammunition cases and other wreckage. The STEWART steamed through this mass and took the men on board. Several of the crew of the STEWART jumped overboard and held up injured and burned men until they could be rescued. Of the crew of seventy-five men of the FLORENCE H., thirty four were saved; many of them seriously burned.

As a result of this incident, the commanding officer of the STEWART received the Croix de Guerre from the French authorities and two of the crew, J. W. Covington, ship's cook second class, and F. M. Upton, quartermaster third class, who had leaped into the water in the work of rescue, received the Medal of Honor from the American Government. Other officers and men were recommended for decorations to our Government.

On April 23, 1918, about one-thirty in the afternoon, while escorting a convoy from Quiberon to Brest, aviators sighted a submarine. The STEWART which was in the vicinity was quick to take advantage of the opportunity presented.

Although the submarine was submerged she was plainly seen from the STEWART. The STEWART passed over her and dropped five depth charges—all exploded. Large quantities of oil came to the surface, and it is believed that the submarine was destroyed as oil continued to rise for about three hours, and large quantities were visible on the water for three or four days afterward.

THE WESTWARD HO

In an account of our operations on the coast of France there is nothing which shows more clearly the seamanship, resourcefulness and courage of the personnel of the Navy than does the salvaging of the WESTWARD HO after she had been struck by a torpedo, August 8, 1918, while some three hundred and fifty miles off the coast.

The WESTWARD HO was a turbine-driven, oil-burning ship, constructed after our entrance into the war. She formed one of a convoy bound from New York to the Bay of Biscay.

The convoy was escorted by the French light cruiser

DUPETIT THOUARS. This cruiser normally would have left the convoy in longitude 22 degrees west, and would have returned to the United States to join another convoy. But, on account of a change in the plans of the French Ministry, it was decided that the escort for the west-bound convoy should continue with that convoy until the afternoon of August 7, when it would turn over the escorting of that convoy to the DUPETIT THOUARS, taking over itself from the DUPETIT THOUARS the escorting of the east-bound convoy.

Later, it was found that the above-planned procedure would necessitate the DUPETIT THOUARS coming all the way to France, as she did not have sufficient coal for the round trip. The west-bound escort, therefore, was to join the east-bound convoy at daylight on August 7, instead of daylight on August 8, as she would have done under ordinary circumstances.

The west-bound escort failed to join as contemplated, and at 10:00 p. m. the cruiser DUPETIT THOUARS was struck by a torpedo—she soon sank. At 6:40 the following morning, the WESTWARD HO was also torpedoed, but remained afloat.

Some destroyers, bound westward to meet a troopship convoy, intercepted the call for help. They proceeded to the neighborhood of the torpedoing of the DUPETIT THOUARS and rescued all of the crew who had survived from the torpedoing. They also found the WESTWARD HO, and, as the urgent necessity of their joining the troopship convoy permitted no delay, they rescued the WESTWARD HO'S crew and proceeded westward. The WESTWARD HO was left in an apparently-sinking condition, her fires out and none of her crew on board.

In the meantime, the American converted yachts, MAY, Lieutenant Commander C. Windsor and NOMA, Lieutenant Commander H. H. J. Benson, and the French sloop CASSIOPEE, Capitaine de Corvette Douguet, had left a west-bound convoy and were headed to the eastward to overtake the east-bound vessels—they, also, intercepted the call for assistance from the convoy of which the WESTWARD HO had been a

part. Responding to the call, they found the WESTWARD HO still afloat.

They attempted to tow her but, on account of their lack of power and of large lines, and the fact that the injured ship was so deep in the water, they were unable to make much progress with her. A volunteer crew from the MAY, therefore, boarded the WESTWARD HO, under Lieutenant T. Blau, U.S.N.R.F., to see if they could be of any assistance. Finding that the ship stood a chance of remaining afloat, they proceeded to get up steam.

The MAY was a coal-burning vessel, and the men from her crew who went on board the WESTWARD HO had joined the Navy since the war began and had had no experience with burning oil or with turbine machinery. Nevertheless, they managed to get up steam in the boiler and to start one of the pumps to clear the water from the ship's hold.

This procedure lightened her somewhat and made towing a bit easier. But not content with this, the new crew continued their work of raising steam until they were able to start the main engines. But she was so deep in the water forward that not much headway could be made without danger of losing the ship; therefore, they backed her instead of going ahead. Thus, she proceeded to port, the two small yachts towing and the French sloop escorting to keep off submarines.

Although the group was joined by two sea-going tugs which took over the work of towing, yet, the men on the WESTWARD HO continued to back her. Two days later than schedule, but before her own crew were brought in by the destroyers, the WESTWARD HO reached port—she had been backed three hundred and fifteen miles.

In the history of the Navy during the war, there is no feat of seamanship and perseverance that deserves higher rank than this.

THE TORPEDOING OF THE WEST BRIDGE

Like the WESTWARD HO, the WEST BRIDGE was a vessel built subsequent to our entry into the war. She formed part of the convoy following the one the WESTWARD HO

belonged to. The MONTANAN, a large storeship, was in the same convoy as the WEST BRIDGE. The escort was to join on the morning of August 16, 1918.

On August 15, 1918, while the convoy was to the westward of the area in which the submarines had been working, the WEST BRIDGE stripped her main turbine, and lay helpless. Her commanding officer immediately radioed in code to Brest, stating the ship's condition and asking that tugs be sent to his assistance.

At this time, the MONTANAN was struck by a torpedo and sunk. So that just after the Commanding Officer of the WEST BRIDGE had made known to Brest that his ship's machinery was disabled, he saw ahead of him in the dusk the MONTANAN in the act of foundering. One may imagine this officer's feelings; unable to move his ship or to see the submarine which had just destroyed the other ship, but compelled to wait until the submarine should see fit to attack him.

Later in the evening the attack was made. The WEST BRIDGE was struck by two torpedoes. She commenced to founder.

But founder she did not, and soon she was joined by the destroyer SMITH, Lieutenant Commander J. C. Byrnes—volunteers from the destroyer under Lieutenant R. L. Connolly came to help man the WEST BRIDGE. Tugs were sent out to her aid also; lines were run, and the work of towing begun. By this time she was so deep in the water as to be little more than a log. With no steam up, and with the impossibility of raising any, she had to be steered by hand. The poop was out of the water, but the well-deck forward of the bridge was flush with the surface of the sea—the sea broke on board with an almost constant roar.

Eventually, four tugs joined, two British, one French and one American, and the U. S. S. ISABEL, Lieutenant Commander L. W. Comstock, and with them she was towed to port. Lines parted from time to time. The ship lurched and frequently seemed about to sink. The hand-steering gear had been slightly jammed and worked so stiffly that it was very difficult to put the wheel over.

After a journey of four hundred miles, lasting five days, with holds, engine-room and fire-room flooded, she made port at last. She was beached on a flat in Brest harbor, examined by the salvage party and the work of repairing was begun. It was estimated that she reached port with only fifty to one hundred tons of positive buoyancy, having been in that condition for a distance of four hundred miles.

Chapter XX

MORE INCIDENTS OF THE NAVAL SERVICE

THE SINKING OF THE U. S. S. PRESIDENT LINCOLN

The PRESIDENT LINCOLN, Commander P. W. Foote, capable of carrying about five thousand men and many thousand tons of cargo, was one of our most valuable transports. On the afternoon of May 29, 1918, she sailed light from Brest bound for the United States.

There had been some uncertainty as to whether the PRESIDENT LINCOLN would be ready in time. But we held the convoy for a short time on her account and the hearty efforts of her officers and crew made it possible for her to sail with the convoy. On this, hung the fate of the ship.

There was an escort of four American destroyers and one French aviso, the OISE. These had orders, upon leaving the west-bound convoy, to join, on May 31, storeship convoy No. 69 from New York. The other escort vessels of our forces were all employed: four were escorting two troopships to Brest; two were required for use on May 30 to bring a troopship group and the LEVIATHAN into Brest and to go out the same afternoon to join a convoy of storeships from New York; our two remaining destroyers were undergoing necessary overhaul.

At this time, there was a submarine operating to the westward of the English Channel. It had attacked a ship at 11:00 p. m. on May 28th. This information was the last we had of the submarine until after the PRESIDENT LINCOLN had left Brest. When the LEVIATHAN arrived, however, we learned that the WEST CARLTON had been torpedoed at four o'clock on the afternoon of May 28th, about one hundred and twenty miles to the southward of the point where a ship had been attacked on the previous day.

One convoy, with the PRESIDENT LINCOLN therein, at first was sent somewhat to the southward in order that it

might keep clear of the track of the incoming troopship convoys and to avoid a convoy en route from Dakar to England. This southward course was considered safer than a northward one. By daylight, May 30, the convoy was clear of the path of all others. We then directed it to change course somewhat to the northward which would bring it nearer to the course of the storeships east-bound. The escorting vessels had orders to leave the west-bound convoy after dark on May 30, and to join the east-bound storeship convoy before daylight on May 31st.

Accordingly, at 8:43 p. m., on May 30th, it being thought that the west-bound convoy would be comparatively safe during the night run before it, the escort vessels left it. It was learned afterward from the captain of the enemy submarine that he had sighted the west-bound convoy that afternoon, had overtaken it during the night and had taken position well ahead to await its approach.

On the morning of May 31st the convoy was attacked. The torpedo or torpedoes crossed the bow of the RYNDAM and hit the PRESIDENT LINCOLN.

The stricken vessel settled rapidly. It was soon evident to the captain that she was doomed—he ordered her to be abandoned.

The abandonment of the ship worked without a hitch. Although she soon sank, the comparatively small loss of life was confined to the officers and crew. The fact that none of the Army or of the other passengers entrusted to the ship's care were lost, strengthened what was becoming a watch-word of the Navy, what we believe will become a tradition; that the safety of passengers entrusted to our care was to be preserved no matter what the cost to ourselves.

At the time of the sinking, the destroyer SMITH, Lieutenant Commander J. H. Klein, formed part of the escort of which the ISABEL, Lieutenant H. E. Shoemaker, was the flagship and which, after leaving the convoy containing the PRESIDENT LINCOLN, had joined New York Convoy HN 69 at daylight May 31st. The WARRINGTON, Lieutenant Commander G. W. Kenyon, had sailed from Brest the

evening of May 30th to join the same New York convoy on the morning of May 31st, and at the time of the torpedoing had joined the ISABEL.

The SOS call from the PRESIDENT LINCOLN found these two boats separated and some two hundred and seventy five miles away.

The escort commander on the ISABEL immediately ordered the WARRINGTON to proceed to the rescue of the PRESIDENT LINCOLN, and upon receipt of instructions from us, also, sent the SMITH on the same mission.

The PRESIDENT LINCOLN having sunk, no information could be obtained as to her position other than the original message sent at the time of the torpedoing. The boats and rafts containing survivors had been assembled and secured together.

The ensuing night would be a dark one, as the moon did not rise until early morning, and the destroyer commanders knew that, if possible, they must reach the boats before dark, and had to estimate how far the boats would pull or drift. The Commanding Officer of the PRESIDENT LINCOLN made the wise decision not to attempt to leave the position of the sinking, so that, as a matter of fact, the boats drifted some fifteen miles from this place.

Nothing was seen of the boats by the rescuing destroyers until dark, but at 11:00 p. m. the WARRINGTON sighted a small red light and stood toward it, blinking her yard-arm lights and immediately thereafter, heard a faint cheer in the darkness.

She soon made them out and lay-to close aboard. Boat after boat came alongside, until in about a half hour, there were some four hundred and forty three survivors on the ship.

By this time, the moon had risen and the work of finding the rafts became easier, and in the meantime the destroyer SMITH also found them and assisted in rescuing the remainder of the six hundred and eighty eight survivors.

Rescuing vessels based on Queenstown were, also, sent to the rescue of the crew of the PRESIDENT LINCOLN, but, having been entrusted to our care, we were proud of the

fact that it was two of our boats who arrived first on the scene, rescued all the survivors and were on their way to port prior to the arrival of any other ships.

On the morning of June 1st, the SMITH returning to port, loaded with survivors, sighted ahead of her a submarine and made full speed to the attack. The submarine naturally submerged, but the SMITH, on arriving in the position of her sighting, dropped some twenty depth charges which exploded, and, from the reports of Lieutenant Isaacs, who had been taken by the submarine from one of the boats of the PRESIDENT LINCOLN, severely shook her up.

In keeping with other traditions, Lieutenant Isaacs, the **only** officer of the regular Navy captured during the war, succeeded in making his escape from a German prison camp and reported for duty at the Naval Headquarters, Paris.

THE TORPEDOING OF THE U. S. S. COVINGTON

The COVINGTON, Captain R. D. Hasbrouck, sailed for the United States on July 1, 1918, with a convoy of eight ships and an escort of seven destroyers. The convoy had the exceptionally fast speed of fourteen and a half knots. The escort was to meet an incoming convoy.

At this time, our destroyers were all employed. Seven were with the convoy of which the COVINGTON was a part. Six had sailed the same day with a convoy west-bound from Quiberon. There were four with a west-bound convoy of troopships from Brest. On the same day, too, three left to meet a storeship convoy from New York. Five had returned from escort duty on May 29th and these were getting ready to go out for another convoy. One could not be employed because there was an epidemic of influenza on board her. Two were being overhauled in Liverpool. Thus, it will be seen that the convoy in question had been given an escort of all destroyers available.

There had recently been a large amount of submarine activity in the Bay of Biscay. On June 28th a ship had been sunk and another attacked to the southward. There was a possibility that this attack had been made by the same submarine that had attacked a convoy out of Devonport on June

20th. The latter attack had occurred some one hundred and twenty miles to the northward of where the attack of June 28th had taken place, but the submarine might have been working to the southward by June 28th.

The GREGORY, in a convoy out of Falmouth, was torpedoed at a point midway between the positions where the attacks of June 20th and June 28th had been made. This circumstance might have indicated the presence of another submarine, or that the first submarine, having torpedoed a ship to the southward, was working her way back to her former station to the northward.

Our convoy which had sailed from Quiberon was diverted well to the northward and went clear.

The route which had been laid down for our convoy from Brest, including the COVINGTON, would carry it about twenty three miles northward and westward of the position where the GREGORY had just been torpedoed, this, of course, marking the last known position of the enemy submarine.

After studying the situation, it seemed probable that the GREGORY'S submarine was working to the northward. We, therefore, directed our Brest convoy to go by a route not far from where the GREGORY had been struck—we believed that by this time the submarine would have gone northward.

But at 2:40 p. m., on July 1st, and after our convoy had sailed, a message was received from the British destroyer GRASSHOPPER, stating that the GREGORY had been struck by a second torpedo. This immediately indicated that the submarine was remaining in the vicinity and, yet, since we knew that two trawlers were standing by the GREGORY and that they might have towed her to the northward, the message from the GRASSHOPPER left doubt in our minds in regard to the location of the submarine. Immediately, we asked the GRASSHOPPER for her position, but there were many other convoys on the ocean anxious to get the position of the GREGORY—we could get no reply from the GRASSHOPPER.

Unable to obtain the information we needed, we diverted the convoy to the westward until dark and then told them to

change course to the southward again. Just after the convoy had made the change, to the southward, the COVINGTON, while in latitude 47-24 North, longitude 7-44 West, was struck by a torpedo.

The tug CONCORD, en route to the GREGORY, was diverted to the COVINGTON. The British authorities also, sent two tugs to her assistance. The tugs joined, and took the COVINGTON in tow for Brest. But the following morning, after steaming some sixteen hours since her torpedoing, the ship up-ended and sank. A merchant ship reached Brest the day after the COVINGTON was sunk and reported that she had had a plain sight of two submarines. If this report was correct, then there were at least three and possibly four submarines operating in that vicinity at that time.

THE TORPEDOING OF THE U. S. S. MOUNT VERNON

The MOUNT VERNON, Captain D. E. Dismukes, was the last one of our larger ships to be torpedoed and it was the largest one.

The MOUNT VERNON and the AGAMEMNON, Captain D. Sellers, reached Brest on September 3, 1918. She rapidly discharged her troops and took on coal for the return voyage. On the afternoon of the following day we were ready to despatch the two ships to the westward.

Both of these vessels could maintain a speed of twenty knots and they were given an escort of six destroyers—not because we believed this force was necessary, but, because the destroyers, after leaving the MOUNT VERNON and AGAMEMNON, were to join the LEVIATHAN, GREAT NORTHERN and the NORTHERN PACIFIC and escort them to Brest. Two ships making twenty knots and escorted by six destroyers might be expected to be able to sail through any submarine-infested waters with a maximum degree of safety. If we had had time to worry, we would have worried less about these two ships than about any other convoy from the west coast of France.

Moreover, the MOUNT VERNON was a lucky ship. She had made trip after trip in fast time, accomplishing her turn-around without hitch or delay. She was very successful

in discharging troops and in getting coal aboard—the Army was always fond of having her in port and found her easy to work with. All destroyers other than those assigned to this convoy were employed or were held to sail with other convoys sailing at times that would not permit such destroyers to go with the MOUNT VERNON convoy.

At this time, enemy submarines were very active in the Bay of Biscay; usually between latitude 48 north and 46 south.

Under ordinary circumstances, we would have sent the MOUNT VERNON and the AGAMEMNON well to the southward and clear of submarine activity. But the LEVIATHAN and her companions were coming at high speed on a course so well to the northward that, if the MOUNT VERNON and their escort should go to the southward, the escort would not have time to join the incoming ships.

A route fairly well to the southward was chosen, but later given up. A number of British convoys were crossing the Bay of Biscay—a position received from a vessel in a convoy from the British Isles to Dakar showed that the route of the MOUNT VERNON would intersect the route of the Dakar convoy at 1:00 o'clock in the morning of a dark night. This information immediately made the southward route impossible of employment.

We assigned the MOUNT VERNON and the AGAMEMNON convoy a new route well to the northward, north of the area where submarine activity would be most likely to be found. But no sooner had we assigned this route and had sent it to the ships, when we received a message that the DORA, one of an incoming convoy from New York, had been torpedoed in a position exactly in the path of the new route we had just assigned to the MOUNT VERNON. It was, therefore, thought advisable to change the route again—somewhat to the southward so that the Dakar convoy would pass ahead. The final route, therefore, was a compromise between the one we considered the safest and the one necessary to give our destroyers time to join the incoming group after they had left the outgoing group.

These changes in the projected course were made before

our convoy sailed. No radio message was sent out by us to the convoy for the purpose of effecting changes in course after the convoy had left Brest; hence, the enemy submarine did not determine the route of the MOUNT VERNON by intercepting a radio message, because no messages were sent.

Our convoy sailed on the afternoon of September 4, 1918. The next morning we were just beginning to feel that the high speed of these ships must have already placed them in a position of reasonable safety, when we received the news from the MOUNT VERNON that she had been struck by a torpedo when in latitude 48-32 north and longitude 10-38 west and that she was making four knots toward Brest.

Evidently, the submarine had come up between the two ships—which had just changed course thirty degrees—and was lucky in getting in a shot at the MOUNT VERNON whose high rate of speed made her difficult to hit, notwithstanding her great size.

The escort commander on the CONNER, Captain A. G. Howe, was face to face with a difficult situation. The AGAMEMNON having escaped the first attack, was in no danger of a second one because no submarine could overtake her, but the circumstances were very different in regard to the MOUNT VERNON. The MOUNT VERNON required all the escort that could be given her, yet, the escort commander had orders to meet on the following morning a ship—the most important in our possession—a ship carrying some nine thousand men and accompanied by two other ships carrying about two thousand men each. He sent three destroyers to overtake the AGAMEMNON and kept three with the MOUNT VERNON. The MOUNT VERNON worked up a speed of fourteen knots—her commanding officer then despatched one of the escorting destroyers to join the CONNER in protecting the AGAMEMNON.

The Admiral in Brest was reassured by the receipt of this news. In the meantime, he had sent three destroyers from Brest to relieve the MOUNT VERNON'S escort. The three destroyers from Brest missed the MOUNT VERNON—the night being foggy. One of the three, the FANNING, Lieutenant Commander F. Coggswell, continued on to join the

convoy coming in with the LEVIATHAN—a display of excellent judgment by her captain. The result was that four destroyers joined the LEVIATHAN at the rendezvous at daylight and that two more joined before dark of that night.

It was a harrowing night for all concerned. Our escort for the LEVIATHAN was no longer intact and, yet, it had to find the great ship and bring her through waters of proved danger. At the same time, the MOUNT VERNON, badly damaged, was seeking port through a rapidly roughening sea.

Despite the fact that she was drawing forty feet of water and despite the thickening weather, the MOUNT VERNON made port during the night without further mishap.

The LEVIATHAN, GREAT NORTHERN and NORTHERN PACIFIC were somewhat behind their schedule (in order to make maximum speed they had stopped zig-zagging) came safely through the submarine zone and arrived without incident.

The seamanship and judgment shown in fitting the MOUNT VERNON to endure just such injury as befell her, and in bringing her safely into port after the torpedoing, and the same qualities displayed by the escort commander and the destroyer captains in the handling of their vessels at sea, were of the highest order.

FOUR SHIPS TORPEDOED OUT OF ONE CONVOY

The latter part of 1917 and the early part of 1918 were marked by a maximum submarine effort against the convoys proceeding up and down the coast.

On the afternoon of January 5, 1918, fifteen ships sailed from Brest for Quiberon. They were escorted by two American converted yachts—the WANDERER and the KANAWHA and a couple of small French vessels.

The convoy was formed in two columns. The leader of the right column was the American steamer HARRY LUCKENBACH, and the steamers HENRI LE COUR, DAGNY and KANARIS were numbers one, four and seven of the left column. All lights were out except dimmed stern lights to serve as guides for the ships following. The speed of the

convoy was about eight and one-half knots. A convoy which had started the previous afternoon had been attacked off Penmarch; a point of land about forty miles from Brest; the crews of all the ships were, therefore, alert and the escorts were keyed to expectancy of attack.

The sea was rough with a southeast wind, and the night, although dark, was clear.

The escort vessel WANDERER, Lieutenant-Commander P. L. Wilson, was commanded by the senior naval officer. About 11:10 p. m. this vessel sighted a suspicious object on the starboard beam—she made recognition signal and headed toward it. The signal was not replied to and the object disappeared in the darkness. The WANDERER could not be sure whether it was an enemy submarine or was merely one of the small French torpedo-boats that usually patrolled the coast.

By this time, the night had become exceptionally dark, with sky overcast. Ships a few hundred yards away could only be seen with difficulty.

At 11:30 p. m., when about eight miles west of Penmarch, the lookout on the port side of the HENRI LE COUR saw a torpedo jump out of the water. Two seconds afterward the ship was struck abreast of number four hatch. She sank in forty five seconds.

The night was so dark that the disappearance of the HENRI LE COUR was not noticed by any of the convoy. Two boats from the LE COUR reached the village of Penhors and a third, containing the captain, was rescued at two-thirty by the French destroyer TEMERAIRE.

At ten minutes past midnight, the WANDERER suddenly heard an explosion off her port bow—she stood over at full speed toward the noise. The HARRY LUCKENBACH had been struck by a torpedo, the force of the explosion being so great that several men had been thrown into the sea. Although, herself, in imminent danger of attack, the WANDERER stopped, turned her searchlights on the wreckage and, after a long search, succeeded in rescuing twenty-six men. These men were so cold and exhausted from their stay in the

chilly water that they were almost rigid by the time they were gotten aboard.

In the meantime, the converted yacht HARVARD, which was passing through these waters, obtained information of the attacks and headed for the convoy. A French destroyer, also, joined at 2:00 a. m.

At 1:15 a. m., the captain of the DAGNEY blew his whistle and fired two signal lights. Ten minutes later the ship was struck on the starboard side and sank in two minutes.

At 2:00 a. m. the lookout at the stern gun of the KANARIS saw the wake of a torpedo about two hundred meters away. The torpedo struck the ship abreast number two hatch. She sank rapidly by the bow. She fired signal lights but apparently they were not seen.

Up to the time of these events the coastal convoys had been making all the run during darkness, with a small escort. The loss of four ships from the one convoy was the direct cause of a change from night sailing to day sailing of the convoys, a change instrumental in safeguarding the passage of ships along the west coast of France.

THE LOSS OF THE ENGLISH STEAMER BAYVOE

On the afternoon of January 10, 1918, a convoy of four ships, escorted by two American destroyers, sailed from Brest for Quiberon. The BAYVOE was the last ship in the convoy.

It was expected that two small French patrol vessels would reinforce the escort at the Raz de Sein, some thirty miles from Brest. However, they did not succeed in finding the convoy. On account of bad weather, the convoy was two hours late in reaching the Raz de Sein.

About 7:30, when half-way to this channel, the convoy ran into a heavy snowstorm and became confused. The leading ship changed course one hundred and eighty degrees, the other ships following.

When the squall had passed, the BAYVOE found herself alone four miles north of Armen which is a light on the shoals

to the westward of the Raz de Sein. She increased speed and tried to overtake the convoy, but, after passing Penmarch, she headed for Belle Isle, an island off the entrance to Quiberon. At 2:30 a. m. she was struck by a torpedo on the port side.

The ship had to be abandoned—boats were lowered. The submarine approached the boats and among other questions her captain asked: "Why are you travelling singly?" The commanding officer of the BAYVOE answered that he had lost touch with the convoy in the snowstorm. "The same thing happened to me," said the submarine captain.

ENGAGEMENT OF U. S. S. CHRISTABEL WITH U. C. 56

On the afternoon of 21 May, 1918, the CHRISTABEL, the smallest of the converted yachts operating in French waters, was escorting a slow ship which had dropped behind the north-bound convoy from La Pallice to Quiberon Bay.

This vessel, the British steamer DANSE, was about eight miles behind the convoy, making about seven and a half knots, with the CHRISTABEL on her port bow. The sea was smooth, weather clear with no wind.

When about two miles outside of Ile de Yeu a well-defined oil slick was sighted on the port bow. The CHRISTABEL cruised around it but saw nothing definite.

At 5:20 p. m. a wake was suddenly sighted by the Officer-of-the-Deck and the lookout, about six hundred yards distant on the port quarter, the CHRISTABEL at this time being about 300 yards on the port bow of the DANSE.

The CHRISTABEL headed for it, making all possible speed—about ten and a half knots—whereupon the wake disappeared and a number of oil slicks were seen.

The Commanding Officer followed this oil as well as he could and at 5:24 p. m., believing that his ship was nearly ahead of the submarine, dropped a depth charge, but no results were obtained although the charge exploded.

At 7:00 p. m. the convoy changed course following the contour of the land and was making about nine knots. The

CHRISTABEL was astern, making about eleven knots to catch up.

At 8:52 p. m. the CHRISTABEL sighted a periscope about two hundred yards off the starboard beam. She turned and headed for it, whereupon the periscope disappeared.

At 8:55 p. m. a depth charge was dropped which functioned in ten seconds, followed by a second one a few moments afterwards.

Nothing followed the explosion of the first charge, but following the explosion of the second there was a third very violent explosion which threw up between the stern of the CHRISTABEL and the water column raised by the second charge, an enormous amount of water and debris.

The CHRISTABEL then turned and cruised in the vicinity and noticed a quantity of heavy black oil and splintered pieces of wood, with very large oil bubbles rising to the surface.

Nothing further was heard of this submarine, but, on May 24, 1918, an enemy submarine, the U. C. 56, arrived at Santander, Spain, in a very seriously damaged condition, and from such information as was received, it was believed that this was the vessel attacked by the CHRISTABEL.

Chapter XXI

DISTINGUISHED VISTORS

Many passengers between the United States and France were transported on the troopships under the protection of the Navy. The first large vessels reached the coast of France on November 10, 1917, bound for Brest, which was destined to be the European terminal of the largest and fastest transports in the service. During the year that followed there was an ever-increasing activity as our war effort gained momentum—a constant stream of special passengers went through Brest.

There were Cabinet Members on official missions. There were committees of the Senate and of House of Representatives. There were government officials and diplomats of the various Allied countries as well as those of our own land. There were agents of every branch of war-work connected with the transportation of a vast army from American to French soil.

Nor did the cessation of hostilities mark the end of travel to and through Brest. On the contrary, after the armistice, many distinguished officials came to France on naval vessels. There were scores of visitors, but our limited space confines our record to those who came during the period ending November 11, 1918, the date of the signing of the armistice.

The U. S. S. MOUNT VERNON was in the first convoy of naval transports that used Brest as a port of entry. She was formerly the KRONPRINZESSIN CECILE, widely known on account of her dash into Bar Harbor at the beginning of the war in 1914.

On December 7, 1917, while the MOUNT VERNON was lying in the outer harbor of Brest, a special train was diverted from the entrance to the usual terminal and was brought in on the tracks used for freight cars, alongside the boat landing in the arsenal. This train brought Colonel E. M. House and other members of the first diplomatic mission of the war.

Admiral W. S. Benson, Chief of Naval Operations and General Tasker H. Bliss, Chief of Staff of the Army, were members of this party.

The train was met by the Commander, U. S. Naval Forces in France and by the Prefet Maritime. They were accompanied only by such officers as were needed to carry out the arrangements for departure. The members of the mission were taken directly on board the MOUNT VERNON. Soon after, escorted by the cruiser SAN DIEGO and six destroyers, the big transport slipped out of the harbor.

The greatest secrecy had been preserved in preparing for the departure of Colonel House and until he was safe on American soil, few persons knew that he had passed through Brest.

Mr. Newton D. Baker, Secretary of War, landed at Brest and departed therefrom on all his visits to France during the war.

He came for the first time on March 10, 1918, on the U. S. S. SEATTLE. The submarine menace was then very grave, and every precaution had been taken to keep his expected arrival secret. His presence on the SEATTLE was not even known on the AGAMEMNON and MOUNT VERNON, two ships travelling in convoy with the SEATTLE.

Two days out from Brest the SEATTLE hoisted her submarine flag, and opened fire on a suspicious object. However, this proved to be only a spar floating upright. Otherwise, the passage was made without incident of note. The SEATTLE dropped anchor in Brest harbor soon after noon on a rarely beautiful day.

Mr. Baker spent the afternoon on shore inspecting the various Army activities in Brest. He returned to the United States on board the MOUNT VERNON, April 5th.

This passage was made in seven and one-half days, the transport record up to that time. The Secretary of War made an address during the voyage which was greatly appreciated by the men on board. Afterward, when the MOUNT VERNON was torpedoed, he wrote immediately to the Commanding officer:

"With your lost comrades, you, who have been mercifully saved, have added another page to the Navy's best traditions, and I wish you all, my late shipmates, continued success and all good fortune in the great cause you have so nobly served."

Mr. Franklin D. Roosevelt, Assistant Secretary of the Navy, spent a few days in Brest in the early part of the summer of 1918, and made a tour of inspection of the naval activities in that region. He returned to the United States on the *LEVIATHAN*, accompanied by Prince Axel, of Denmark.

Mr. Oscar T. Crosby, Assistant Secretary of the Treasury, passed through Brest on two occasions, going to and from the United States in connection with his duties as Chairman of the Inter-Allied Financial Committee. In the late summer of 1918, he crossed on the *LEVIATHAN* and reached Brest just too late to take the last evening train to Paris. Mr. Crosby went to the Hotel. Here, a large dinner for Inter-Allied Army and Navy Officers was in progress. He was invited to join the group and was persuaded to make an impromptu address. His words were eloquent and were enthusiastically applauded. At that time victory was already in sight and it gave a new stimulus to the Americans present to hear from Mr. Crosby of the ever-increasing activities in the United States.

Mr. Stettinius, Assistant Secretary of War, came to Brest on one of the naval transports.

Senator J. Hamilton Lewis took passage to France on the *LEVIATHAN* in August, 1918. After a short time spent at the front, he returned to Brest and sailed thence on the *MOUNT VERNON*, September 4th. The following morning, when about two hundred and fifty miles off the coast of France, the *MOUNT VERNON* was torpedoed. Senator Lewis hastened on deck and distinguished himself by helping to care for the sick and wounded who were on board.

On board the *MOUNT VERNON*, when she was struck, were Congressman Thomas D. Schall and Mrs. Schall, who

were returning to the United States after an extensive trip among war activities in France. In a book recently published by the ship's company of the MOUNT VERNON, a special tribute was paid to the pluck and courage displayed by Mrs. Schall, the only woman on the ship at the time of the attack. She remained perfectly calm, her one thought being for the safety of her husband who is entirely blind.

The Committee of Naval Affairs of the House of Representatives, including Mr. Lemuel P. Padgett, the Chairman, made an official visit to Naval Headquarters at Brest and made a tour of naval activities in that region. The Committee left Brest on the GEORGE WASHINGTON.

Other members of Congress, travelling independently, frequently passed through Brest during the last months of the war. Among them was Mr. Swager Sherley, Chairman of the Committee on Appropriations of the House of Representatives.

Mr. Samuel Gompers, President of the American Federation of Labor, and his associates of the Labor Delegation, after spending some time in Europe, returned to America by transport from Brest.

Mr. Otto Kahn and Mr. Paul Cravath of New York, both of whom rendered such valuable aid to the Government during the war, returned to the United States on Naval transports.

Mr. James Kerney, Chairman of the American Committee on Public Information, came to Brest in April, 1918, to study the activities of the Navy on the coast of France. He was accompanied by a staff of photographers and journalists. In the party was Mr. James Hazen Hyde of New York and Paris, who, afterward, published an article in "L'Illustration" on American naval activities. A few months later, Mr. Kerney again visited Brest, sailing thence for the United States.

Mr. Ralph D. Paine, the well-known author, spent a considerable time on the coast of France, familiarizing himself with the work of the Navy. He has since written several articles concerning the operations of American naval vessels in the Bay of Biscay.

Another well-known writer, Mr. Samuel G. Blythe, gathered in Brest material for an article on our naval forces,

which he contributed to the "Saturday Evening Post."

Mr. Wythe Williams, of the London "Daily Mail" and the Paris "Matin", visited Naval Headquarters on two occasions and wrote a number of excellent articles on activities there.

Mr. Reginald Wright Kaufman, perhaps, devoted more time than any other American journalist to the performances of the Navy in France. He visited the different shore establishments and the different types of ships operating in French waters. Later, his series of articles appeared in regard to the part played in the war by our naval forces, and his book on these activities has recently been published.

Many French journalists and writers came to Brest to witness the arrival of convoys and to visit our headquarters. M. Etienne Grosclaude, who contributes to the Paris "Figaro" and who is a prominent figure in French public life, not only inspected activities on shore, but was given passage on a destroyer which went out to sea, met and brought in a fast convoy of troopships. This experience he has admirably described in an article called: "The American Crusade".

M. Andre Chevillon, prominent among French literary men, made two visits to the naval base at Brest and recorded his observations in the "Revue de Paris".

M. Georges Lacour-Gayet of the French Naval Institute, a man interested in and familiar with naval forces, came to Brest to examine the activities of the American Navy. He contributed accounts of them to French magazines.

Among the other visitors was Claude Farrere, a retired Commander in the French Navy, and a well-known novelist. He, too, has written about the work of the American naval forces on the French coast.

Captain Raoul Amundsen, came to Brest as the guest of the Commander, U. S. Naval Forces in France. Captain Amundsen was collecting material for a series of lectures. These, he delivered in the north-west in order to arouse interest and support for the United States in the war.

Many other distinguished foreigners visited us in Brest. In August, 1918, President Poincare, accompanied by the Minister of Marine, the Chief of Staff of the French Army,

and a number of officers of the French Army and Navy, came to Brest on a special train to see the Headquarters of the United States Navy in France.

During this visit, the President visited the PROMETHEUS and the LITTLE and went out into the harbor to witness the arrival of a convoy of troopships. Rear Admiral Grassi, Italian Naval Attaché at Paris, visited the Commander, U. S. Naval Forces in France, and saw something of the activities in Brest. Rear Admiral Montosso, of the Brazilian Navy, made a brief stay while on his way to the Mediterranean. Rear Admiral Lovatelli, the present Naval Attaché at Washington, and Captain Saint-Seine, the French Naval Attaché there, sailed for the United States on a naval transport from Brest.

General Berthelot returned to France on the NORTHERN PACIFIC after a hurried trip to Washington. He reached Brest just before the great Allied offensive in July, 1918, and went immediately to the front.

Various religious leaders who were doing war work in France passed through Brest. Usually they made their plans so that it would be possible for them to delay long enough to speak to the forces of the Army and Navy. Bishop McCormick, of the Episcopal Church of Western Michigan, delivered a splendid address to naval men at the Carola Barracks. Among other religious leaders who came to Brest were Bishop Wilson of the Methodist Episcopal Church, Bishop Perry, Bishop Brest and Rabbi Wise.

Except nurses, not many women travelled on transports—most of the war workers travelled on French liners or came to France by way of England. Mrs. Reginald Wright Kaufman (Ruth Kaufman) was the only woman on board the NORTHERN PACIFIC on a return trip from France. An article by her, called "Back In an Empty" was published in a recent number of the "Outlook". Before sailing, Mr. and Mrs. Kaufman spent several days in Brest gathering material.

Mrs. Margaret Deland, also, sailed from Brest on a transport.

Another American woman who will not soon be forgotten

by the men of the Navy stationed at Brest, is Mrs. Burton Greene, better known by her stage name, Irene Franklin. Miss Franklin had just finished a strenuous month of playing at the front; nevertheless, even in bad weather, she gave at Brest all the performances possible before the departure of the NORTHERN PACIFIC on which ship she returned to America.

Miss Kathleen Burke, of New York, well-known for her success in raising funds for war work, visited Naval headquarters in Brest but did not return to the United States from that port.

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